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VOL. XI JANUARY, 1913. No. 1

EDITORIAL NOTES.

A NEW YEAR; A NEW VOLUME.

First, a very Happy New Year to all! Get the spirit of a newly created something, with all the potential good that there may be in it, and rejoice that you have a new and untouched year ahead of you. May it be as full of happiness as you can tolerate, and may it contain, for you, the minimum of sorrow, sadness or unhappiness. May the hand that writes inscribe on the three hundred and sixty-five pages of this new book the greatest number of good and pleasant things and the least number of the opposite sort of things of any year of your life. On the next page will be found an editorial note that appeared in the January JOURNAL five years ago; it is as true to-day as it was then, and so we reproduce it.

PROPER RECIPROCITY.

The Fresno *Republican,* in its issue for November 21, again discusses the STATE JOURNAL and the question of medical reciprocity, and asks "will the JOURNAL say whether it favors a reciprocity law such as most other states have, to apply to states having equally high standards?" Most unequivocally, *yes.* Not only does the STATE JOURNAL approve of a *proper* reciprocity law, but the State Medical Society, when it prepared the law of 1901, included in that law a reciprocity clause. Is that sufficient indication of the attitude of the Society and of its JOURNAL? The then Board of Examiners requested New York, and, if memory serves, Pennsylvania and New Jersey, to enter upon such reciprocal arrangements; but with what result? California was told that New York would not reciprocate because the standards required in Cali-

(Continued on Page 3.)

Important Notice!

Change in Place of Meeting, 1913.

The Annual Meeting for 1913 will NOT be held at Santa Cruz.

About the middle of December, the Council was notified by the proprietor that the hotel at Santa Cruz would be closed till some time in May; it then became necessary to change the place of meeting. The Council met on December 21st and considered a number of places, finally decided to hold the

Annual Meeting April 15, 16 and 17, 1913

AT

OAKLAND

REMEMBER THE PLACE

OAKLAND

REMEMBER THE DATE

Tuesday, Wednesday and Thursday, April 15, 16 and 17, 1913.

And be sure to attend.

There will be clinics arranged for one day in Oakland and Friday and Saturday, after the close of the State Society sessions, in San Francisco.

It will be a big meeting.

COME!

A NEW YEAR PRAYER.

To all of our readers, greeting! May the year deal kindly with you, and bring you much that is good and little that is of sorrow or trouble; may the spirit of peace and harmony prevail with you throughout the year, and may the mantle of jealousy drop from you as a rag that is worn out; may charity, justice and brotherly love guide you always in your thoughts of and your relations with your fellow practitioners of medicine; may it bring an end to bickerings and dissensions, and, departing, may the year leave with you a better stored mind, contentment with yourself and your fellows and the inward knowledge, from which comes peace of mind, of a twelvemonth of good, honest work, done with the very best that is in you and to the betterment of at least a portion of mankind. Give of your time and your brains the best you have to your medical society, that, in so giving, you may unselfishly help the entire medical profession and the people who are dependent upon it for health and protection; where there is an active and industrious medical society, there will you find good doctors and responsive and grateful patients. Let no word of idle slander or supposititious criticism of a colleague pass your lips; if you cannot speak well of a brother physician, speak not at all, for when you disparage another physician you hurt yourself as well and the entire profession is belittled in the eyes of the people. May your interest in your medical society work increase with the passing months, and may the year close upon a more closely united and more intimately related medical profession, thus giving to the people of our state the very best medical supervision. May happiness be with you, one and all.

(Continued from Page 1.)

fornia were lower than those required in New York! It is quite possible that, as several years have elapsed since this unpleasant incident, New York and some of the other states in which there are high standards of medical education, might assume a different attitude and be willing to exchange recognition of certificates obtained in either state under similar conditions. It is silly to ask a physician who passed an examination in New York or New Jersey or Michigan last year to take another examination in California this year. There is not, never was and never could be any argument on that. If the Fresno *Republican* is clamoring for reciprocal recognition of certificates issued upon a basis of equal (*and equally high*) medical standards, then there is no room for discussion. If, however, the *Republican* would have California reciprocate only with second and third class states in which registration is more or less of a farce, or a matter of form, then is there room for a good sized argument—or none at all, as you see it! It is this latter form of reciprocity that is loudly demanded by a number of those who have applied to the California Board and failed to pass the examination. Very, very few of those rejected could qualify under a proper reciprocity law, such as we presume the *Republican*, like the STATE JOURNAL and the State Medical Society, would approve and endorse; and both the STATE JOURNAL and the State Medical Society have gone on record as approving such a proper reciprocity law by helping to enact and supporting the reciprocity clause in the law of 1901. The *Republican* is greatly in error if it thinks that "wide open" reciprocity—the kind that would let in anyone and everyone—is "a measure which nobody has proposed and no sensible man will propose." It has been proposed; it will be proposed and a bill creating it will be introduced in the next legislature. There will also be introduced a bill creating a proper and acceptable form of reciprocity; the kind referred to as desirable by the *Republican*. We take it that the *Republican* will help us to pass the latter and reject the former? Is there anything in the nature of "evasion" about this statement of the attitude of the JOURNAL? The good amendment referred to, creating proper reciprocity, has been prepared by the attorneys for the State Board of Medical Examiners in consultation with members of the board, of the State Society and of laymen interested in the subject and has the endorsement of the State Society and of the JOURNAL, but if it is neither defeated nor so materially amended that a *low* and *not* a high standard of requirements will be the basis for reciprocity, we shall be very agreeably surprised.

PROGRESS IN ANESTHESIA.

The last few years have seen considerable progress in the development of improved anesthetics and improvement in the manner of producing anesthesia. It is quite a while since the spectacle of two or three husky men holding one poor patient while another helper crowded a mask over his face, has faded away. Gwathmey has recently made a suggestion that, during the limited time it has been tried, seems to be a distinct advance in anesthesia. He begins the anesthesia with two to four drops of essence of orange (25% U. S. P.) and then continues with the drop method of ether anesthesia. In a recent paper in the *Journal* of the A. M. A., he highly commends the work of the Committee on Anesthesia of the Association and recommends that it be continued. He also suggests that the future development in anesthesia should be along the line of some form of "vapor anesthesia."

THAW AND SCHRANK.

The contrast between the two cases of the murderer Thaw and the would-be murderer Schrank (the man who took a shot at Mr. Roosevelt) is the most striking and instructive comment on expert evidence that has come along in many a day. We all know—and blush for—the disgraceful fight of "medical experts" in the Thaw case; and in so many other cases, too, by the way. In the Schrank case the Judge, A. C. Backus, appointed a commission of five experts to determine whether the man Schrank was sane or not. They reported unanimously that he was not sane and he was promptly committed to an insane asylum; the charge against him remains and should he at some time in the future claim to be cured of his insanity, he will still have to face a trial for his murderous assault. Six weeks after the shooting, and without a trial that would have given a chance for much posing and great notoriety, he was committed to an insane asylum in the charge of the court. There is some hope after all.

CONGRESSES AND CLINICS.

The great surgical congress recently held in New York seems, from the accounts of it in the eastern journals, to have been a marked success. The program was certainly enormous enough to satisfy the most greedy and to furnish anyone with surgical yearnings enough material for long and careful thought. It has been suggested that the surgical congress be invited to meet in San Francisco in 1915, but when one considers the program offered at the last meeting, and the paucity of clinics and clinical material to be demonstrated in San Francisco, it would almost seem to be an excess of temerity even to suggest such a thing, no matter how greatly we might desire to be the hosts of the surgical congress. Just what congresses or conventions will be held in San Francisco in the exposition year, it is not possible to say. The American Medical Association will be invited to meet there and a committee of the Association has suggested that a large congress of those interested in hygiene, preventive medicine, tropical diseases, etc., be held in connection with the exposition. What will be the outcome of this proposition remains to be seen; of course the Association cannot decide until 1914 the place of meeting in 1915, but at the present writing there seems to be a certain feeling of willingness to come to San Francisco at that time.

EDDYITE CONTRADICTIONS.

The "Eddyite" is a curious animal. He denies the existence of disease (except as an error of thought!) and in the same breath claims to produce wonderful "cures." He clamorously announces that enormous numbers of patients "given up" by regular doctors are brought back to life and health by his absent treatments; and he never refers to these wonderful "cures" when they soon die. He claims a far advanced religiosity, and does mighty little "treating" that is not well paid for. All this is suggested by the death of an actress, Mabel Hite, from cancer, on October 22. She had been "cured," only a very short time before, by Eddyite treatment. One cannot but be sorry for poor Miss Hite.

BOHANON AMENDMENT UNCONSTITUTIONAL.

The legislature, two years ago, passed an amendment to the medical law which was signed by the governor on the last day of statutory grace. This amendment compelled the board to issue a license to anyone practicing a specialty, provided he had practiced it for 35 years and in California for 15 years. In other words, it licensed anyone who had broken the laws of the state for 15 years to keep on with the work that was originally illegal! Bohanon, a cancer "specialist" of Oakland, applied, with several others, for a license under this amendment. The Board of Examiners denied the application and he took the case into court where the law was decided to be unconstitutional. He will, in all probability, take the case to a higher court unless the present legislature passes another amendment designed to fit his particular case.

SUICIDAL CONTRACT PRACTICE.

It is a shame that the illuminating disclosures that are being made in England in the course of the discussion of the National Insurance Act and the refusal of the members of the British Medical Association to serve the government under it, cannot be brought to the thoughtful attention of every physician in this country. The medical profession of this country has not yet reached the stage of degradation that has been achieved in England, but it is rapidly on the way and will reach it unless physicians awake to the fact that "dollar-a-month" companies and lodges giving free medical service to their members are merely exploiting the physician for the layman's gain. Mr. Lloyd-George, in a recent speech in Parliament "thought he could safely say that contract practice in all forms provided for more than half the working population" of England! Just imagine over half the working population of this country getting its medical service at the rate of about ten cents per visit! Nearly all the "clubs" or "societies" as these contract companies or organizations are called in England, were organized and are owned by lay people who reap the profits and pay the doctor as little as they possibly can. In certain sections of England there are practically no people who are not in some club or society and thus there are no private patients for the physician. Mr. Lloyd-George intimates very plainly that the government is seriously considering a state medical department to do the work under the Insurance Act, as the members of the British Medical Association refuse to do it. English ideas of the value of medical service must be startlingly peculiar if one may believe the statement made by Mr. Lloyd-George that "6d. (12 cents) should be set aside for paying the general practitioner for all the work he did in reference to the treatment of tuberculosis" and that "he had no doubt at all that 6d. was more than adequate"!!

MEDICAL BUILDINGS.

Nearly every member of nearly every county medical society pays office rent to somebody; and the county society, in most counties, also pays rent to somebody. Why not pay office rent to ourselves and devote the profits to improving the society library building, scientific work, etc.? This is not a foolish question but a straight business proposition. In Los Angeles, a magnificent building is to be erected and the financial plan is such that at the end of about twenty years or a little less the building, and its income, will be the property of the Los Angeles County Medical Association. In San Francisco, a building committee has been at work for some two or three months on a similar scheme and at the annual meeting in December reported that the plans, while still indefinite as to details, had been endorsed by bankers, architects, contractors and lawyers and that a definite plan would soon be adopted and a two million dollar home secured which, at the end of some fifteen years or so, would become the property of the San Francisco County Medical Society. It is simply a matter of paying rent to ourselves instead of paying it to some one else. The same plan could very easily be adopted in a number of the smaller counties. Oakland, Sacramento, San Jose, Fresno, Stockton, and a number of others have enough physicians, all paying rent, to support a Medical Building, under the control of the county society, which, by proper financing, would, in a few years, be the property of the society and produce an income that would support a good deal of active scientific work. There's something to think over for this year. Why not take it up for serious consideration?

DECEMBER EXAMINATION.

The December examination of the Board of Medical Examiners was held in Los Angeles the first week in December. There were 140 applicants and of these 135 were admitted to take the examination and 5 rejected for insufficient credentials. At the time of the examination, one applicant was expelled for cheating. The candidates who took the examination and have since passed through the JOURNAL office, say that it was very fair but not at all easy. A written examination is, at best, but a poor test of individual ability and it is to be hoped that the day will come when a more practical and rational method of examinations, more after the plan of the British examinations, may be adopted in this country.

THE NEXT ANNUAL MEETING.

Do not forget that the next annual meeting of the State Society will be held April 15, 16 and 17; Tuesday, Wednesday and Thursday. The various county societies did not vote to change the time of the meeting. The Chairman of the Committee on Scientific Work is Dr. Dudley Fulton, of Los Angeles and those who desire to present papers should write to him at once, "lest they get left." Begin right now to make your plans to attend this meeting. In the House of Delegates, every county society should have its full representation, as matters of the utmost importance will come before that body. A recommendation will be made that the Medical Defense rules be amended so as to exclude from protection (after a date at least six months in advance) any member who may be sued for alleged malpractice in the treatment of any fracture or any surgical operation, unless he had a consultant at the time of treatment or operation. That is worth careful thought. Also, the increase in the number of such suits and the very great increase in the cost of protecting them, will come up for discussion and action. Make your plans now to attend the meeting in April.

EDUCATIONAL ASSISTANCE.

Unfortunately, we none of us know so much that we cannot be taught a little more; some of us would be benefited by a whole lot of teaching! Apropos of this fact the suggestion has been made to us that it would be a good plan, if practicable, for the American Medical Association to employ a certain number of competent teachers to go about the country visiting the various county societies and staying long enough to give courses of lectures or instruction in the more recent advances of medicine. It is difficult for the busy practitioner, especially in the country, where distances are great, to keep up with what is being discovered in these progressive days. More than likely there are a good many physicians to whom "Wassermann," "luetin," etc., are but vague words. The idea is very "sketchy" and may not be practicable, but we turn it over to the Association authorities to consider and do with as they please.

WIDELY DISTRIBUTED INTEREST.

It has been a matter not only of great interest but of some small pleasure to note the widely distributed territory in which the JOURNAL seems to be of enough interest to be fairly well read—or looked through. A few copies go into nearly every state in the United States and some to England and Europe generally. At least one reader in every state in which the JOURNAL circulates, has written to us asking for "stickers" which were first advertised in the September issue; two or three requests have come from England and Canada and the following post-card was recently received from a reader in Germany: "You would much oblige us by sending us a set of 'stickers' as mentioned in the STATE JOURNAL ADVERTISER." Even our advertising pages seem to be worth the attention of a good many who receive the JOURNAL; they are readers who are up-to-date; no one can be up-to-date, in these days, unless he pays attention to the advertising pages of the reputable publications that pass through his hands.

ORIGINAL ARTICLES

ON THE TOLERANCE OF THE VITREOUS TO DISLOCATED LENSES, AS AN INDEX TO RECLINATION IN GIVEN CASES.*

By P. de OBARRIO, M. D., San Francisco.

It has been my privilege to come in contact in my years of practice in the tropics with a number of unusually complicated and neglected eye affections. I said privilege to the full extent of the word, for the important reason that, because of the same neglect I have been able to gather most valuable data, which I feel would have been impossible to get in the neighborhood of large centers with hospital facilities and public clinics, as these cases would have been in all probability attended to, and the opportunity of observing the very late results of a good many occular affections not subjected to treatment would have been lost.

Due to this same reason I have been able to report the largest case of binocular, double internal and external ptrygia on record [1] giving in detail the manner of treatment and mentioning some original observations concerning the prognosis of these cases as regards the distribution of capillaries of new formation after surgical intervention, based on an extensive experience on the treatment of this affection.

Such observations have been favorably confirmed and commented upon by my friend and colleague, Professor Terson of the University of Paris, in his most excellent and instructive article describing his recent and new procedure in the surgical technic of pterygia, which to my mind is exceptionally good and to which I expect to dedicate a special chapter.[2]

On the same order of things I have met and kept in touch with the cases that I am about to report from which I have drawn such conclusions as have at a later period guided me in the successful management of complicated cases in a manner that is neither taught nor learned except by coming in contact with this kind of material which is not generally found in the clinics. These cases have been both traumatic and post-operative and I take them from my practice as they have come to my observation from time to time and in different countries.

The first case is that of Mr. S., thirty years of age, a druggist as well as farm owner, whom I saw for the first time in the Republic of Salvador, the year 1902. He came to my office to be prescribed for glasses and I at once observed that his right eye was aphakic.

He explained to me that seven years previous he had been thrown from his horse and had received a violent blow on this eye. After the reaction subsided he noticed that he could see much less out of this eye.

The ophthalmoscope revealed the presence of an

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

opaque lens dislocated downwards into the vitreous chamber very freely movable and attached to the cilliary region only by a slight filament. He claimed he was never troubled by this eye, with the exception of conjunctival irritations in both eyes from time to time, due principally to his out of doors life, exposed to the great tropical heat and dusty roads. The lens was apparently not much reduced in size and his vision was improved to 20/30 with a plus 10 D. I advised him to seek treatment the moment he noticed any reaction on this eye.

I have recently heard from a physician friend, who resides in San Salvador who is personally acquainted with the case and he informs me that the patient is doing well; has never had any particular trouble with this eye and has required no treatment. This case, therefore, has had a dislocated lens in his vitreous during seventeen years and has not been any worse for it. A partial or total absorption of his lens must have taken place and it is fair to assume that if after these many years he has had no reaction, the chances for any further trouble are very slim.

The second case is that of a school boy fifteen years of age whom I saw the year 1903 in Panama. The patient had opaque lenses in both eyes as a consequence of having fallen from a carriage three years previous and struck the back of his head on the stone pavement, having been unconscious for over an hour. Both lenses were completely opaque so that he had only light perception. After dilating the pupils, which is a practice I always undertake in every cataract case, I could detect an almost imperceptible tremor of both lenses upon rapid motion of the eyes; but so slight was this that I could not pronounce myself definitely on this matter. I proposed the extraction which was cheerfully accepted.

Immediately after the counter-puncture of the cornea, I noticed that the amount of what seemed to be the aqueous was exceedingly large. Upon closer observation, however, it proved to be nothing else but the greater part of a completely liquefied vitreous which by the time the incision was finished at least one-half had escaped. With great precaution, an attempt was made to extract the lens which turned backwards into the vitreous chamber like a door on its hinges and any further attempt was out of the question.

The iris was carefully replaced into the anterior chamber and a small amount of sterile saline solution injected with a dropper under the cornea in order to replace to a certain extent the great amount of fluid lost.

The patient had an uninterrupted recovery and a very useful eye to the extent of 20/30 with the correcting lens.

Three months after this operation while he was acting as catcher at a baseball game he was struck on his left eye (not operated) with the ball with such force that he was rendered unconscious for a long time. He tells me he had considerable swelling of the lids and that he kept his eyes bandaged for several days. As soon as he was able to open the lids sufficiently he was astonished to observe that he could see out of this eye.

I saw the case one year after the accident and found his left lens dislocated into the vitreous in the same manner as that of his right eye that had been operated upon, and he had an equally good vision out of this eye as of the other. I have observed this case from time to time up to December, 1910, when I left the Isthmus of Panama, and at no time was this patient troubled with his eyes in spite of his being an unusually active and restless youngster.

When I last saw him I observed that neither of the lenses was as freely movable as at an earlier period after their dislocations and apparently they were undergoing gradual absorption as they were slightly diminished in size. This patient has stood nine years with the lenses in the vitreous and I presume that as he is now quite a young man and his lenses would probably be absorbed, that there is no cause for apprehension in the future.

In 1903 likewise, I had the opportunity to treat a colored boy of about 16 years of age with double traumatic cataracts. Both eyes showed very fluid vitreous and tremulous iris. In this case I did not pretend to attempt any extraction but, based on my previous observations, I deliberately luxated both his lenses backwards and downwards into the vitreous chamber with an interval of ten days between the operation of one eye and that of the other.

The method consisted in performing a very small corneal incision very close to the schleral margin and located towards the external canthus, just sufficiently large to admit the introduction of a medium size strabismus hook which upon being placed into the anterior chamber, it was guided through the pupil into the posterior chamber so that the very tip rested on the upper border of the lens. With one turn of the handle on its axis the lens was made to descend and rotate backwards.

The first eye was operated with local anesthesia and the second with general narcosis. It is important to be positive that the lens remains dislocated as there might be some filaments to pull it back into the pupillary area; however, these details concern another article on some observations pertaining to a series of similar cases.

The patient has had no trouble of any nature with his eyes up to date and his vision was 20/30 with the correcting glasses.

I will not trouble you with the history of the next two cases; they both belong to the laboring classes and were admitted to St. Thomas Hospital at Panama in 1906; one in January, the other one in March. The first case was forty years old and the other thirty-seven. The first case had received a severe blow on his left eye five years previous, while the other patient presented a recent traumatism. Both these patients had necessarily had violent reactions from their external trauma, but as far as their eyes were concerned they presented round, central, movable, jet black pupils with their lenses dislocated into the vitreous, and very useful sight.

Here is then a series of cases in which the lens has been dislocated into the vitreous chamber for periods varying between six and seventeen years, in relation with patients whose ages have varied between fifteen and forty years. The results of these cases are in entire accord with the general knowledge one has on this question of vitreous tolerance to dislocated lenses which fact has been a matter of record since the dawn of ocular surgery. In fact, it was the basis of the method of treatment by reclination.

Speaking on this subject Professor Panas of Paris has the following to say:[3]

"Generally speaking the luxation in the vitreous provokes a lesser reaction than in the anterior chamber. The most frequent complication is an iridocyclitis that is very rarely combined with glaucomatous symptoms. I generally prefer to abstain from interfering, remembering the great tolerance of the vitreous during the practice of reclination of the cataract."

Professor Fuchs of Vienna[4] expresses his views in this manner:

" . . . On the other hand luxation of the lens into the vitreous is the form best tolerated, specially if the lens as time goes on, becomes smaller through resorption. In fact, in the depres-

sion of cataract one used to count upon this tolerance of the eye towards the lens when depressed into the vitreous."

Other authors are of the same opinion.

In view of this fact I believe it is improper and much to the disadvantage of a certain group of cases, to relegate to oblivion a surgical procedure which in its day had a wide range of usefulness. Undoubtedly if we had reliable statistics of the post-operative results in the practice of reclination I feel confident that there must have been many disasters which should be attributed principally to the fact of having adopted a trans-schleral puncture as well as to the most important reason of having performed these operations during the pre-aseptic era when surgeons were practically making unconscious stab cultures in the vitreous, a most excellent medium for bacterial growth.

As an immediate result of these observations, I have established for some time past the practice of reclination in the treatment of tremulous cataracts, as the safest means to obviate the dangers of extraction, as there is nothing to support the immediate flow of large quantities of vitreous when the zonula is defective and the vitreous very fluid. The detailed observations relating to a series of such cases is the basis of another study.

I will insist on the fact that if in some of these cases which have been the consequence of violent traumatism and have received but very indifferent treatment, the ultimate and remote effects have been so satisfactory, it is proper, natural and logical to presume that under modern aseptic precautions and with the technic I have casually hinted at in the course of these observations, the results should be and in fact are most encouraging.

References.

(1) "Un caso exceptional de terigion y algunas consideraciones sobre el tratamiento de esta afeccion." Dr. P. de Obarrio—Anales de Oftalmologia, Vol. V. Mexico, 1903.
(2) "Sur la structure, la pathogenie et une operation modifiee du pterygion." A. Terson, Archives O'Ophtalmologie, Paris, Mars, 1911.
(3) Traite des maladies des yeux, pages 613-614.
(4) Text Book of Ophthalmology, page 392.

Discussion.

Dr. Kaspar Pischel, San Francisco: In former centuries "Staar-Stecher," who were not physicians, traveled from town to town during fair-time to make reclinations. The scientific surgeons gave up reclination of cataract in the nineteenth century, principally on account of the frequent occurrence of glaucoma after such operations; the fact that asepsis was not known at that time must have contributed a good deal toward unfavorable results.

Dr. Vard H. Hulen, San Francisco: I believe with Dr. de Obarrio that there are cases that could rightly be submitted to the reclination operation. Several years ago I reported at the meeting of the American Medical Association an experience with a cataract patient. Many years before I saw the patient his right eye had been operated upon by a competent man and the cornea was left opaque. I was called upon to operate upon the left eye and thinking that possibly the methods of handling his eye might have something to do with the opacity of the cornea I took every precaution with the second eye. There were no complications but the cornea was left opaque. I reported this case before the Section on Ophthalmology of the American Medical Association and stated that if I had another opportunity to operate upon such a patient that I would feel justified in doing a reclination in the second eye. The discussion was overwhelming against the suggestion and I mention it now because with Dr. de Obarrio's contribution I should feel more encouraged to try it in such a case than I did then.

Dr. P. de Obarrio, San Francisco: The subject of this paper is but a preliminary investigation as to the tolerance the vitreous has to the dislocated lense and a subsequent paper will follow in which I will relate my experiences with several cases. The question of reclination has been a matter of practice since the dawn of ocular surgery. The operation of reclination is practiced to-day daily in India. It is a pity that it is in the hands of non-professional men that do not observe the proper technic and they have no knowledge of the anatomy of the place upon which they are operating. With all that, their results are very frequently brilliant. The application of reclination in tremulous cataracts I believe is a very valuable procedure and I have adopted it regularly for years past.

240 Stockton St.

NEUROSES OF THE MOUTH AND THROAT.*

By M. W. FREDRICK, M. D., San Francisco.

No doubt a number of you have experienced the elderly lady, generally of Hebraic or Celtic extraction, who positively asserted, and had a mass of historical facts to bear out her assertion, that she had a hair in her throat which had been there for many days. After several vain attempts to find the hair either the patient concludes to try some more skillful practitioner, or she has been rid of her hair by psychotherapy and mild local measures. Nothing is more exasperating than the search for a peg upon which to hang a diagnosis without discovering the slightest excrescence to support an opinion. We feel that we may be amongst those against whom the medical epigram "More mistakes are made by not seeing than by not knowing" is directed, and we tire our eyes and brain trying to discover even the smallest objective change which might justify the patient's subjective symptoms.

Lippincott's definition of neurosis is: a functional nervous disease; an affection of the nervous system occurring without any material change producing it, without inflammation or other structural change which can be detected in the nervous centers. Against this I would like to place the definition of John McCrae in Osler's system, Vol. V, page 86: "There is a tendency to think that neuroses exist without organic lesions, but in the esophagus, as elsewhere, it is well to remember that some lesion may exist which is a point of origin for the stimuli that call forth the symptoms. The lesion may be, often is, quite inconsiderable, and out of proportion to the symptoms it excites, but the effects of treatment will be much better if it be borne in mind that such may exist. In many cases it must be admitted that not the slightest deviation from the normal is to be detected."

It is according to the latter conception that I have written a few words.

* Read before the San Francisco Polyclinic Society, April 3d, 1912.

We are all familiar with the globus hystericus, that bane of many young women, and might feel inclined to treat the patient's assertions with derision, were we not cognizant of the fact that the patient suffers more than many who have a tangible malady. Besides it is well to remember that this sensation is often a forerunner or accompanying manifestation of hydrophobia, lyssophobia, tetanus, strychnine poisoning, neurasthenia, etc. All those who are in the habit of using cocain in the nose and throat are familiar with the distress which it causes in some patients, who declare that they are choking to death, whereas our knowledge of the action of the drug, as well as ocular inspection convince us that the breathway is wider than before. Possibly the lessened sensibility of the pharyngeal mucosa prevents the patient from feeling that air is passing into the trachea, just as, in an opposite condition, the patient with ozena thinks he is breathing better when his nasal passages have been narrowed by paraffin injections into the turbinals, because he has a heigthened sensation of the air passing over the mucosa. Bear in mind, however, that occasionally cocain, as well as adrenalin, and orthoform have been known to cause an acute edema of the larynx.

Again, we have a patient, generally a female, who complains of pain in the tongue. Nothing can be found to account for it. Perhaps a papilla or two at the root of the tongue is found to be slightly congested or hypertrophied, and a few applications of a mild caustic will dispel the pain. These and a good many similar complaints are simply expressions of nervous hyperesthesia, or hysteria, and can often be overcome by suggestion, a field in which that misnamed cult "Christian science" reaps its biggest harvests. The physician should not hesitate to use psychic therapy; a physician's office is to heal and comfort his patients, and he is justified in using every means conducive to that end. So many of us are prone to disregard the mental side of the maladies we have to deal with; we want our pound of flesh always, and forget the psychic element. Many people by con centrating the mind on an anatomical part can produce in an otherwise normal place a starting point for all kinds of mental and physical discomfort. A case in point: one of my earliest patients was a cook, a robust young man, who discovered his circumvallate papillae one day while looking at his throat in a handmirror. Nothing would convince him that they were normal structures, and he was much distressed with their presence and the train of symptoms which they caused. I touched the papillae a number of times with a mild caustic, and thus succeeded in relieving him of the supposititious pain which he had endured for months. Subsequently I learned that he was a confirmed racetrack patron, and a firm believer in hunches, thus supporting my diagnosis of neurasthenia. A similar condition is that of the patient who has swallowed a fishbone, and swear that it is still sticking in the throat, when a diligent search reveals nothing although it is safe to assume that a small scratch in the mucosa could be found were it possible to look into all the folds of the pharyngeal mucosa. A swabbing with silver nitrate and an earnest assurance that there is no foreign body present will generally relieve the patient, but woe betide you if you have really overlooked the fishbone. Every animal is much concerned about his air supply, and any accident to the intake causes much alarm.

Examples of similar cases with a purely hysterical or neurotic basis might be cited almost without end. Arrayed against them are those cases in which we can find nothing objective, and still feel that there must be a physical basis for the symptom. A pain in the throat may be due to a stomach disorder, such as hyperchloridia. The eye is the mirror of the soul, but the tongue and throat are the mirror of the stomach, to quote Henri Roger's maxim in a slightly modified form. There may be an ulcer on the back of the soft palate, or in the pharyngeal vault, which may be either syphiltic, diabetic, tubercular, or cancerous. The patient, as usual in such cases, has a strong reflex which precludes the use of posterior rhinoscopy. The modern electric pharygoscope may render us good in solving some of these mysteries, but I must confess that so far I have not learned to use it to much advantage.

Dry throat is often complained of by people with diabetes or cardiac insufficiency. Obstruction of nasal breathing, or chronic suppurative processes in the nose also give rise to throat dryness. About six months ago a man over 70 came to me for an extreme dryness of the throat which increased after physical exertion. A feel of his radial artery convinced me that he had serious heart trouble, and I advised him to consult an internist. Two months later he dropped dead. About a year ago a woman of some 50 odd years consulted me for a difficulty in swallowing. Something prompted me to feel her pulse, and I found she had a pulse rate of about forty. I referred her to Dr. Lennon, who confirmed my suspicion of bulbar paralysis. Two months later she was feeling somewhat better, and went to the theatre of a Saturday evening. There she became unconscious, and passed away in the Receiving Hospital in the early hours of the following morning.

Some years ago an old lady came to me with the story that she scratched her throat the day before while eating a breadcrust, and felt considerable pain. I could see nothing that day, but on the following day I found an erosion on the left tonsil. These erosions increased in number, the old lady became so weak that I had to visit her at her home. Her whole body soon became covered with blebs, some of them of enormous size, and in two weeks she succumbed to her attack of pemphigus bullosus.

A foul taste in the mouth may be due to caries of the teeth, but is also common in duodenal catarrh, duodenal ulcer, dyspepsia, fecal accumulation, gastric irritation, gangrene of the lung, hysteria, insanity, jaundice, lithemia, liver affections, myxedema, peritonitis, poisoning by arsenic, copper,

mercury, lead, iodine, tartar emetic, etc. And yet we see every once in a while a recipe given in the medical journals for foul taste, as though that were an entity which might be corrected by some local application.

While we have thus spoken of the remote causes, namely the digestive, the vasomotor, the nervous, and the infectious causes which are to be considered, there still remain a large number of referred pains from immediately adjoining parts to be analysed. It is not to be wondered at that we are confronted with all kinds of radiated and reflex pains when we consider the interlacing and intercommunications of the many nerves in the small space represented by the head. Here we have motor, sensory, sympathetic nerves crossing and recrossing one another, each one capable of affecting the other either with a sensation transmitted in a pure or a modified form. Those who wish to get a good anatomical picture of the nerve map of the head are referred to the excellent article of Bliss of Philadelphia in the *Annals of Otology, Rhinology, and Laryngology* for Sept., 1909. The article contains, besides, many excellent remarks concerning the carpentering and plumbing practiced on the cavities of the head by aggressive operators, and is a very good article for those who are inclined to deride conservatism in nose and ear work. To illustrate the difficulty in running a reflex pain down to its real focus, he cites the case of a lady "who had been distressed many months by a peculiar cough. After a long course of fresh air and forced feeding treatment she had been advised to go to Southern California. No one had examined the patient's ears. Her cough was peculiar, and was of a character that should always excite the suspicion of a reflex. It was dry, hacking, ineffective, at times paroxysmal, and with gagging. One could say, too, that this patient had laryngitis, for the vocal cords were pinkish, and the mucosa of the larynx reddened, from the irritation of coughing. This patient's ears were filled with impacted cerumen over a bed of hard, desquamated epithelium. The hearing was not affected to an extent that was noticeable. The very simple matter of clearing the external auditory canals ended the patient's long term of hacking cough, forced feeding, and medication. The 'reflex irritation' had gone over the track of the otic ganglion, inferior maxillary, glosso-pharyngeal, and pneumogastric nerves to the pharynx, larynx, and trachea."

The ear pain complained of when there is trouble in the dental region, such as caries, troublesome dentition, swelling of the gums, is too well known to be dwelt upon. Similar ear complaints are often found when a tonsil is partially inflamed, generally from an encrypted concretion.

The pain felt in the upper incisors after surgery on the turbinals is another familiar example of radiated pain: here we can easily follow the path through the ganglion of Bochdalek which lies at the junction of the anterior and middle dental nerves. The sensation in the tongue when the chorda tympani is touched, the cough we often incite when in cleansing the ear canal we touch the aural branch pneumogastric are familiar to all. The patient cannot, as a rule, do much towards assisting the physician in the matter of exact locating. It is known that patients refer all pain arising in the throat to a point just below the angle of the jaw, and should one ask a patient to place his finger or a probe on the area of pain in the mouth he is generally very uncertain about it.

To show how misleading conditions in the mouth may be, allow me to recite a case in my experience, which does not really belong here, as there were physical signs in profusion. In relating this case I am not feeding my vanity at the expense of my colleagues, as I was also misled. An elderly gentleman was taken with a great swelling of the tongue, with the attendant dyspnea, dysphagia, pain, etc. A skillful surgeon had been called, a piece of tissue removed and pronounced carcinoma by a competent microscopist. Amputation of the tongue had been decided on, and I was called to determine the condition of the larynx and surrounding parts. The patient had a strong reflex, the tongue was much swollen. and the patient somewhat unruly. Severe and repeated traction was necessary, which I practised with constantly increasing vigor. The result was the rupture of a deep abscess of the tongue, and the gentleman is alive today, and can talk more than ever, which is saying a good deal.

Many other obscure symptoms could be explained were more attention paid to the lingual tonsil. Swain, of New Haven, was amongst the first in this country to appreciate this much neglected part of the oral lymphoid tissue, but most of the men in this part of the world show it but scant consideration.

The moral of the whole thing is an earnest protest against a too intense specialization. There is a growing tendency in this country to adopt the minute specialization in vogue in Germany as against the more comprehensive custom of the Irish school.

Glancing through recent literature one is impressed with the number of articles touching on the inter-relation of the diseases of the contiguous parts of the head, and one is bound to realize that the man who essays a diagnosis of an eye disease without being able to appreciate a nose condition cannot do so conscientiously. One of my first great successes was the realization that a lady who had been treated unsuccessfully for a number of years for an affection of the left eye, must have a cause for her eye condition in her left nostril. I treated a hypertrophy of the left middle turbinate, and the eye got entirely well. But this was before the days of Zieg of Danzig, and his splendid articles. Of course, it is rather appalling to think that a man should keep up in all the work appertaining to eye, ear, nose and throat, when it can be justly said that even a constant reader could not keep up with a small part of the eye literature alone. We have not all the capacity of being omnivorous

readers, nor the phenomenal memory to retain that which we have read. It seems to me that the outcome of the situation will be the birth of the general practitioner in eye, ear, nose and throat diseases, who will in turn refer his patients to the specialist in the particular field which he considers deserving of attention. Perhaps, in time, we shall see the coming of the specialist for the right eye, and the specialist for the left eye, etc.

But, there is also another moral to the story, and that is this: do not concentrate your attention on some little point that you have found, and make it responsible for all sorts of symptoms. Do not think that all uterine troubles are due to eyestrain, nor that varicose ulcers of the legs may be explained by a chronic mastoiditis.

Discussions.

Dr. F. J. S. Conlan: In Dr. Frederick's paper the point that impressed me most was that he places all these patients in the hysterical class. They can not possibly be truly placed in such a category. They are unquestionably neurotic, and why, in them, conditions give rise to symptoms, which in others cause no symptoms, we have not yet discovered. Upon careful examination we will not infrequently find an enlarged papilla at the base of the tongue, an enlarged uvula or an enlarged pharyngeal follicle. Removal, causing a cessation of symptoms can not properly be classed as psycho-therapy.

Dr. Cullen Welty: I am very much interested in what Dr. Frederick has to say, however, my experience with patients who complained of pain from fish bones, bits of meat, scratches and abrasions has been such that I can not agree with him entirely. Furthermore, I have been able to find something that I, at least, attribute to the manifestation of pain. I recall to mind a fish-bone case in which I was unable to locate the foreign body or see the lesion that had been produced by the entrance of same, at the same time I was thoroughly confident that it was present; a few days later an abscess developed which was incised and the fish bone removed. The secret of finding reflex pain is to search most carefully and usually you will be rewarded.

Dr. H. S. Moore: I am reminded of the case of an old lady who called complaining of severe pain in her throat and that she was choking, etc. I found that she had a parrot which she was in the habit of cracking nuts for, she got some of the shells under her palate, this caused a scratch which provoked the reflex choking. I find that these cases of reflex choking are often relieved by cauterizing at the apex of the ant. and post. pillars of the tonsils.

URINARY TRACT INFECTIONS IN WOMEN.*

By DAVID HADDEN, M. D., Oakland.

The general impression among the medical profession is that the infections of the urinary tract in women are of rather infrequent occurrence, and that most of the bladder symptoms recorded in pelvic cases are due to conditions in the adjacent organs, and this impression is emphasized by the scanty treatment of urinary tract conditions in the gynecological text books. Up to a short time ago I have taught quite positively that urinary tract infections were comparatively rare, and that most of the bladder symptoms in women were reflex, outside of those cases of fermentation of residual urine.

In the out patient department of Cooper Gynecological Clinic from 1901 to 1906, nine hundred and twenty-eight new patients were treated and came under my direct observation. Of these a diagnosis of cystitis was made in thirteen, whereas urinary symptoms were complained of in some three hundred and forty-one, and throughout that time no kidney infection was recorded. There is no doubt that the greater proportion of the cases recording bladder symptoms did get relief after the other pathology was cleared up, but whether that relief was permanent, or only relative, we had little opportunity to follow up. Probably only those cases without definite infection and with symptoms due to residual urine and putrefactive organisms did have permanent relief. though it is likely that in many cases the urinary tract infection did finally subside, due to the improved general condition of the patient, the result of the corrected pathology.

This paper is based on the study of some thirty cases of urinary tract infection where the diagnosis of the infection has been confirmed by bacteriological examination of the urine. These cases have come under my observation during the last eighteen months in my own private practise and form a much larger proportion than the clinical records mentioned above. It is hardly reasonable to imagine that infections of this character are more frequent now than formerly, but rather we are justified in concluding that the use of vaccines has led to more frequent bacteriological examination of the urine and increased interest in finding such conditions.

In the *London Clinical Journal* of November 13, 1907, C. B. Lockwood published a lecture on "Genito-urinary Infections, Especially the B. Coli Communis," it being a report of some acute urinary tract infections and a summary of the treatment, which consisted of urinary antiseptics, and bladder irrigations of silver nitrate. He states that vaccine treatment was on trial with him then.

In the same journal, February 2, 1910, Harry Fenwick published a lecture on "Diseases Simulating Cystitis in the Female," in which he quotes three types of these diseases:

1st—Hematogenous infection of the kidney due to b. coli communis; this infection he considers the most common and least virulent variety, frequently following influenza, and more common in women because of the greater prevalence of movable kidney causing back pressure. Most of these cases are acute, but the severe infections needing operation are rare. He favors vaccine as being of value only in the first stages.

2nd—Kidney tuberculosis in which he favors tuberculin.

3rd—Ureteritis—due to uterine "sag." Of these cases he reports six, all involving the left ureter (but why the left only he does not know), believing the condition to be a clinical entity not previously recognized. The symptoms are those of severe bladder distress and pain, with tenderness on the left side of the vagina, but without any

* Read before Alameda County Association, October 22, 1912.

urinary findings, though no bacteriological examinations are reported. All six cases were cured by operation to suspend the uterus.

His premises are that "curable cystitis in the female is tantamount to infection from below by way of the urethra. Obstinate cystitis is nearly always due to infection from above by the ureter."

The majority of the urinary tract infections are associated with ptosis of bladder or kidney, or both, and this shows that in women these infections depend most frequently on improper drainage. In the series of cases on which this paper is based are not included those acute infections that are easy to diagnose by the symptoms of fever, frequent and painful urination with pus in the urine, tenderness over the kidney, such as occur with acute infectious diseases, and often follow too frequent and careless catheterization. Such cases are usually self-evident and are not associated with ptosis, and consequently respond to the urinary antiseptics and systemic treatment. Nor are included those patients with extreme saggings of the bladder as represented by pronounced cystocele and prolapse. The cases here quoted are of the border line type where the degree of ptosis, while sufficient, may be unrecognized upon casual examination or where the diagnosis is obscured by other pathology—and yet in order to get a complete cure we have to correct the defects.

With the more thorough understanding of vaccines I prefer to correct the infection and follow with the necessary operative procedures, because thus the results from operation are more prompt. However, if the sagging of the bladder is marked and the residual urine excessive we must operate early. Vaccines will not cure an abscess unless the pus is liberated and the analogy holds here.

I quote the following cases as good examples of the type of symptoms which led to my making a routine examination of the urine bacteriologically, and which gradually forced me to the conclusion that vaccines and operative procedure must be combined:

Mrs. B., aged 60. Home up the coast and away from medical help. Complains of having had bladder trouble for many years; treated twenty years ago by irrigations over a long period, but received little help. During the last few years symptoms of frequent and painful urination, with occasional blood in the urine, have been marked. Examination shows uterus small, atrophic, retroverted; some cystocele. Cystoscope shows very much congested bladder with bleeding points around the beginning of the urethra and several areas just outside trigone covered with blood clots. Considerable pouching of posterior wall. Urine cloudy, showing albumin and pus with some blood, culture showed colon bacillus infection. Treatment consisted of urinary antiseptics, sedatives and vaccines. Improvement was very slow. She now reports that though she feels much better there are still intervals when symptoms recur, and she suffers discomfort most of the time.

No effort was made to correct the pelvic conditions on account of the patient's age. I did not appreciate then that the sagging bladder was so intimately associated with these infections because there were no symptoms directly depending on the pelvic pathology. In a like case now I should advise some operative procedure, or at least make an attempt to hold up the bladder with a pessary in order to prove the premises in the case, and if proven, operate.

Mrs. H., age 38 years. No pregnancies, supravaginal hysterectomy by prominent surgeon six years ago for inflammation, left ovary not removed. In doctor's hands for the last three years for bladder trouble following removal of caruncle. Examinations showed considerable congestion of the vulva, urethral orifice excessively dilated; cervix enlarged and cystic; left ovary low, down, tender, some sagging of anterior vaginal wall. Urine cloudy, alkaline, high sp. gr., trace albumin, some blood; culture shows pure colon. Right kidney tender and enlarged. No cystoscopic examination made on account of acute state of bladder, and later the clearing up of the urine removed the necessity thereof. Treatment consisted of local applications to relieve the congestion in the pelvis with urinary antiseptics and regulation of diet. An autogenous vaccine to combat infection of urinary tract was also used.

In three weeks patient was very much improved. Quantity of urine normal; sp. gr. 1020; clear, no albumin; still slightly alkaline, no blood since beginning the vaccine. After three months of treatment patient felt "fine." Urine culture was negative, local pelvic condition very much improved.

During the next six months there were periods when the urine was alkaline, causing a recurrence of the irritation of the vulva and more frequent urination. I referred the patient to an internist to see if he could find any systemic condition to account for the periods of irritation, as I did not feel that the slight sagging of the bladder was sufficient to account for much residual urine. Nothing physically wrong was found, and the patient a year later still continues to have occasional recurrence of vesical irritation.

In this case I am certain that the removal of the cervix and ovary, and giving of better support to the bladder would put the patient in good health, but a history of most stormy convalescence following both previous operations has prevented encouraging further operative procedures. With overexertion the pelvic congestion is increased, and the sagging of the bladder exaggerated, preventing complete emptying and favoring alteration in reaction, and consequently adding to the irritation. The condition of the patient when first seen was aggravated by the too radical bladder treatment instituted to cure a supposed cystitis, the kidney infection being unrecognized.

The two following histories are typical examples of the type of case with which this paper deals:

Mrs. B., aged 55. One child, menstruation ceased two years ago. Present ill health dates from fall astride a bath-tub five months ago. Had cystitis twenty years before. The coccyx had been removed and the tissue around the perineum incised by a surgeon to whom she had been referred because of pain upon sitting down, and frequent urination. The operation exaggerated rather than improved these symptoms.

She complains of frequent desire to urinate, especially when seated; when lying on back urination frequency is increased, but can lie face downward with comparative comfort; feels well, but is extremely nervous and depressed. Pelvic examination shows mucous membrane pale and atrophic; perineum shows scar of repair, but muscular support is poor; considerable irritation around urethral orifice and vestibule; small cystocele; uterus rather low, atrophic; bladder tender. Cystoscope shows bladder congested, otherwise negative, except for pouching of posterior wall. Urine cloudy, alkaline; sp. gr. 1010; trace albumin, culture shows colon and proteus.

Treatment consisted of vaccine and urinary antiseptics. A small pessary was placed to raise the bladder. In three weeks the urine was perfectly

normal and bacteriological examination negative. The pessary corrected all other symptoms, but three weeks later had to be removed on account of irritation to senile mucous membrane. The discomfort in sitting returned immediately, though there was less frequency of urination than before the infection of the urinary tract had been corrected.

Two months later the patient came, desiring operation, realizing that the majority of her symptoms were due to the bladder ptosis. The operation consisted of an anterior colporrhaphy with perineorrhaphy and abdominal suspension of the uterus. This accomplished permanently what the pessary had temporarily.

Mrs. A. B., aged 51. Has had one child; ceased menstruation at thirty-five years. Had just come from college hospital where gynecologist removed a urethral caruncle without any relief of symptoms. Complains of frequent urination, burning and pain on voiding, backache and a sense of prolapse.

Examination shows considerable irritation around urethra from where caruncle had been removed. Vulva and inside of buttocks show pruritis, probably from sugar in urine; small cystocele, uterus atrophic, although in normal position. Patient had attempted to empty bladder four times in forty minutes, but upon catheterization gives six ounces of residual urine, bladder wall shutting down on catheter just as if a stone were present.

Chemical examination shows albumin, no sugar, culture, an acid forming strepto-bacillus. Cystoscope shows a marked trabeculation and congestion of the bladder, a few bleeding spots, no foreign body but considerable pouching of the posterior wall.

A further report from medical clinic where patient had been under treatment confirmed diagnosis of diabetic mellitus.

Treatment consisted of urinary antiseptics and vaccine, vaginal canal being too contracted to use a pessary as a test of condition. Vaccine finally cured the infection, and thus lessened the frequency of urination, the patient being able to retain urine two hours.

On account of the diabetes an operation was discouraged, but the patient's discomfort caused me finally to do an anterior colporrhaphy and perineorraphy which healed by first intention and resulted in a great improvement in the local symptoms. The general physical condition was improved.

The following case shows that a mechanical interference with the bladder even if unassociated with ptosis favors the development of infection on account of inability to empty bladder:

Miss O. H., aged 25, appendix operation at 13 years of age, when cysts of right ovary were punctured. Removal of right ovary in Orient three years ago. Complains of irritation in bladder and severe pain in right side when menstruating.

Examination shows uterus forward, movable, not enlarged; appendages on left side somewhat thickened; small sausage shaped tender mass on right side in location of tube; kidneys in position. Urine shows trace of albumin, no sugar, sp. gr. 1020. Culture shows colon and streptococcus.

On account of the severe pain during menstruation an operation was performed, when uterus was found forward, closely adherent to bladder; left cystic ovary, and intestines adherent to uterus posteriorly. A broad band of omentum was adherent to parietal peritoneum in median line and inguinal region on right side. Appendix absent. Left tube free but showing nodular inflammation. The right ovary and maior portion of the tube absent. The remaining proximal end of the tube was coiled upon itself, adherent to uterus, with ostium obliterated.

The left tube was removed; the cystic portion of ovary resected; stump of right tube resected; band of omentum removed; the adhesion between the bladder and uterus was separated; 200 c. c. of oleum telephosos left in pelvis and patient was kept in Fowler position in hopes of preventing recurrence of adhesions. Convalescence mild and menstruation at the following periods painless. Bladder symptoms practically relieved, though culture was still positive.

The infection of the urinary tract is here associated with a bladder whose function has been interfered with by the adhesions in the pelvis, especially those of the bladder to the uterus. The conditions found here offer to my mind one of the strongest objections to any operation for a retrodisplacement which involves a plication of the round ligaments between the bladder and the uterus, as does the Coffey, for the development of adhesions is bound to interfere with the bladder functions, favoring infection.

The failure to recognize such conditions as these mentioned, and the difficulty of diagnosing them is due to the fact that in many chronic infections the urine findings vary chemically and microscopically from time to time. As we have seen albumin and pus are not always present, though persistent examinations will finally be positive. The frequent presence of casts tends to an incorrect diagnosis of nephritis.

I have found that many cases of pelvic pathology are corrected, but the urinary infection is overlooked, and on the other hand some cases of urinary infection are diagnosed but the causative factor of the mechanical defect goes unrecognized, and in neither case is the patient cured.

A study of these patients has forced me to the following conclusions:

That urinary tract infections in women are by no means uncommon.

That they are usually associated with improper drainage on account of ptosis in some part of the tract or a relative ptosis produced by the displacement of an adjacent organ.

The infection must occur in many cases autogenously, as mechanical interference can be frequently excluded.

That any operation that weakens the bladder supports, or which may produce adhesions between the bladder and uterus, such as might result from a Coffey, or the newer Willis, round ligament shortening gives a favorable condition for a chronic urosepsis and consequently offers a serious objection to any anterior plication operation.

That in many cases a bacteriological examination only will give the diagnosis, as albumin and pus are variable constituents.

That bacteriological examination must be made from a catheterized specimen when no urinary antiseptics are present in the urine.

That the presence of casts is not always indicative of nephritis but frequently associated with infections and disappear when that infection is cured.

That when vaccine treatment has cleared up or improved the infection, operative work is necessary to correct the sag and cure the patient's

symptom habit, as well as to prevent further auto-infection.

In some cases operative work alone will increase the patient's resistance and result in a cure of the infection.

GASTROTOMY WITH REMOVAL OF 1149 FOREIGN BODIES. RECOVERY.

By A. C. MATTHEWS, A. M., M. D., Napa State Hospital.

The following case is reported because of its unusual interest, considering the number of articles removed from the stomach at operation together with a complete recovery, notwithstanding the marked contusion and ulceration of the stomach walls as disclosed at operation. To those who are dealing with the insane it is not an uncommon thing to hear that some patient has been eating some foreign matter or has swallowed some harmless and indigestible substances as buttons, strings, rags, hair, etc., but rarely do we hear of them swallowing bodies which may give rise to more or less serious trouble as pins, needles, spoons, etc. A peculiar fact observed among the insane is that they can swallow all sorts of articles and apparently suffer little or no inconvenience for long periods of time. This is not only apparent, but actually true and what is the explanation? It is well known by alienists that many of the insane, especially those in a state of marked excitement or with more or less dementia, sustain severe injuries, bad lacerations and wounds, with very little or no complaint. The reason is simple. Their sensibilities are blunted, due to the disordered functioning of the receiving apparatus—the central nervous system—or to a dulling of the peripheral sensory nervous mechanism or a combination of the two. Consequently there is less pain, less shock, less discomfort than we would find in a normal individual. We occasionally hear of operations upon the stomach for the removal of spoons, false teeth, and other objects among these individuals, but in dealing with the insane for many years I have not heard nor read of a case presenting the interesting features shown here and resulting in recovery.

Doctors Vandervirt and Mills* report finding 1,446 articles in a stomach at necropsy. In this case practically no digestive disturbances were manifest during the life of the individual. They also refer to a case by Bell of Montreal in which a hair-ball removed from the stomach formed a complete cast of the stomach and duodenum.

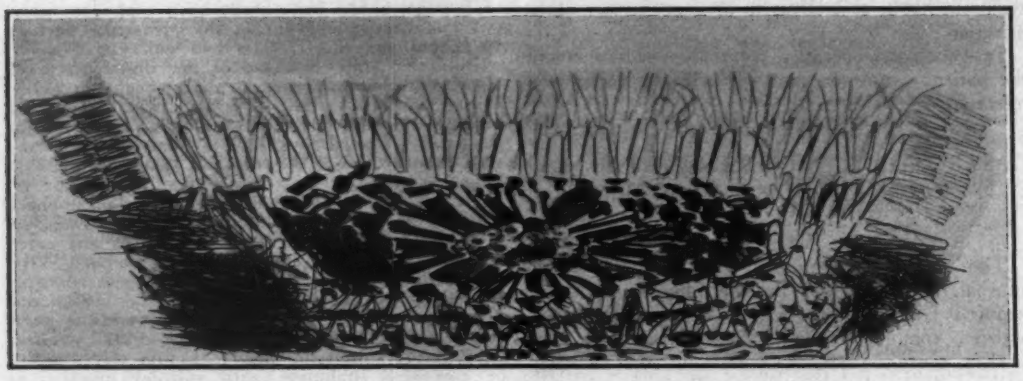
The patient, aged thirty-one, was admitted to the Napa State Hospital in March, 1912. A paternal uncle was insane, the father and sister are eccentric. She was born in San Francisco and spent all her life in California, except one year and eight months in Montana. She was healthy as a child, graduated from grammar school, and spent one year in high school. Always ambitious, desiring to excel in her studies, which she usually did. Was considered exceptionally bright. Began study of music at age of ten and became an accomplished pianist and violinist. Married at age of twenty-five and has two children.

Psychosis: Menstruation was established at age of fourteen. She has always been somewhat nervous and despondent during the menstrual periods. In school she was restless and quite unstrung at examination times because of her desire to excel. However, there appears to have been no actual mental outbreak until March, 1908, when she became restless, sleepless and despondent. She constantly fretted over trifles, had notions, and was unable to care for herself. She continued to be upset through May, June and July. Improvement was noted in August and she was pronounced cured in September of the same year—duration, six or seven months. She continued healthy and cared for her household duties until September, 1911, when she became nervous and depressed over the illness of her two-year-old child. She was pregnant at this time and her condition grew worse after childbirth in October, 1911. Three days before admission she took fifty-seven grains of corrosive sublimate with suicidal intent. At the hospital she was restless, depressed, and tearful, worried much over her absence from home and children, feared she would become a raving maniac and have to spend all her days here. She complained constantly of impulsive thoughts coming to her and an inner tension when it seemed she must scream and rave. Diagnosis—mixed type of manic-depressive insanity.

Discovery of tumor in stomach and operation: May 17th patient began to complain of abdominal distress and then upon close interrogation she hesitatingly admitted that she had been swallowing various articles for the past two months. A few days before this it was reported that patient had swallowed a pin; she finally admitted it, but positively denied she had taken anything else. After confession of her deeds an examination showed a tumorous mass apparently within the stomach, slightly grating in character on manipulation, and seemingly about five or six inches long. There was slight discomfort on gentle pressure. I operated upon the case the same day at 3:10 p. m., being assisted by Doctors Porter and Geraldson of the hospital staff. When the stomach was exposed in the median line it was found that the tumor mass occupied the right two-thirds of the stomach and extended into the duodenum for about four inches. The stomach was opened by an incision about two inches long, on the anterior surface just a little to the right of a midpoint between fundus and pylorus. By means of an electric light introduced through the opening an effort was made to extract the pieces piecemeal by means of tissue forceps. This was a slow, extremely difficult process, and finally had to be abandoned after two hours' work. This necessitated enlarging the incision to the extent of about five inches in order to allow introduction of the hand. Even with this increased advantage the removal was very tedious owing to the close manner in which the objects were interlaced. The gastric mucosa and musculature were badly damaged, especially in the region of the mass. Besides the irritation and ulcerations caused by the foreign matter, the walls were considerably contused during the removal process. The muscular walls throughout the neighborhood of the mass were friable, and even the serous coat appeared less strong than normal. The mucosa and muscular walls were approximated separately by means of chronic catgut and the outer coat with silk. Duration of operation, three hours and ten minutes. The following is a list of articles removed:

180 Wire Hair Pins.
55 Open Safety Pins.
14 Closed Safety Pins.
21 Broken Safety Pins.
5 Prune Pits.

* Jr. A. M. A. January 21, 1911.



23 Buttons.
3 Collar Buttons.
13 Nails.
3 Screws.
2 Screw Eyes.
4 Tacks.
1 Staple.
5 Parts of Teaspoon.
425 Broken Pieces of Hairpins and Wire.
1 Piece of Thread.
104 Unclassified Odds and Ends, mostly metal.
9 Parts of Combs.
280 Small Pins.
1 Piece of String.
Total, 1149.
Weight, 1 lb. 2 oz.

May 17th, 1912. The operation was completed at 6:20 p. m. Given saline solution per rectum (Murphy drop-method). At 7:40 p. m. morphine ¼ gr. with atropine. Vomited at 8:00 p. m.; character, bloody. Stomach was not washed out after operation. Desired to avoid all unnecessary irritation. Given teaspoonful of warm water by mouth during the night to relieve marked thirst. Slept at intervals.

May 18th, 1912. Morphine ¼ gr. at 2:30 a. m. Murphy injection continued during the day. Small quantities of warm water during the day to relieve thirst. Restless at intervals, voided urine voluntarily. Peptonized rectal feeding rejected. It was then diluted and introduced by Murphy method. Slept at intervals. At 6:00 a. m., temperature 100.8, pulse 114, respiration 20. At 8:00 p. m., temperature 103.6 (highest), pulse 134, respiration 28. Slight delirium at time of high temperature. Abdominal distension (gas) relieved by rectal tube.

May 19th, 1912. At 8:30 a. m., temperature 99.2, pulse 100, respiration 18. Slept at intervals last night. Restless and in pain at 4:15 a. m. (morphine ¼ gr.). Kept quietly in dorsal position since operation. Rectal feeding every six hours. Bowel movement (somewhat hemorrhagic). Some gas pains during the day relieved by tube. More comfortable to-day.

May 26th, 1912. Since last note patient has been steadily improving. Temperature, pulse and respiration have been normal. She is now being fed entirely by mouth with no discomfort. Abdominal incision was inspected yesterday and sutures removed. No signs of infection or peritonitis.

June 5th, 1912. Patient is now up and about the ward and, to all appearances, is in her usual good physical condition.

THE MILK SUPPLY OF SAN FRANCISCO AND ITS BACTERIAL CONTENT.

By E. E. HUTSHING, Ph. C., San Francisco, Bacteriologist with S. F. Board of Health.

Of the various classes of milk, shippers, wagon, creamery, depot, etc., of which samples are taken by the Health Department's inspectors to be submitted to its laboratories for examination, only the first named is regularly put through the routine bacteriological examination. By shipper's milk is meant that which comes direct from the source of supply, namely, the dairy.

At various, but irregular periods throughout each month, samples are taken as the shipments arrive at the main points of entry to the city (Third and Townsend streets, and the Market street (Union) Ferry). The "raids" occur either at an early morning hour (about 7 a. m.) or in the evening (about 7 p. m.), as it is at these times that practically the whole city supply reaches here.

The low temperature of the early morning and evening hours at which the samples are taken is most conducive towards keeping the bacterial content at a point that will give the laboratory examination the diagnostic value it aims at, that is, the condition of the milk at the time of its arrival in the city.

There are about one hundred and thirty dairies supplying milk to this city. All of these lie within a radius of about one hundred miles of San Francisco. As may be seen from the dairy location map, the majority of these supply sources lies within thirty-five miles of the city. The cattle supplying the product arriving here about 7 a. m. are milked about 3 a. m., that which arrives in the evening, comes from the milking done about 3 p. m.

METEOROLOGICAL CHART FOR S. F.
July, 1911—July, 1912.

	Temperature			Humidity		Rain Fall
	Max.	Min.	Avg.	5 A. M.	5 P. M.	in inches.
July	61.9	50.9	56.4	92.5	79.1	0.00
August ...	62.0	51.1	56.5	92.2	78.2	0.00
Sept.	66.8	53.3	59.9	87.1	68.4	0.00
Oct.	68.5	53.3	60.9	82.5	61.0	0.28
Nov.	65.1	49.5	57.3	76.1	53.1	0.60
Dec.	57.6	45.8	51.8	72.0	57.5	2.54
Jan.	56.5	47.1	51.8	86.9	74.0	2.47
Febr.	60.6	48.7	54.8	80.1	68.8	0.41
Mar.	57.2	47.5	52.2	76.8	63.1	4.10
April	58.1	47.5	52.7	79.9	63.8	1.38
May	63.3	51.0	57.2	84.3	65.5	1.47
June	67.5	53.2	60.4	82.2	66.1	0.81

The official temperature and humidity records for San Francisco, during the past twelve months, hold good for the greater part of the dairy region, especially Marin and San Mateo counties. The humidity is influenced principally by the fogs which for the mornings and evenings throughout the greater part of the year envelop most of the counties bordering on San Francisco Bay. The most striking fact about the temperature is its comparative evenness throughout the year. The winter fogs are principally tule fogs, but the heavy mists present during most of the year are the clean, cool ocean fogs direct from off the Pacific.

Thus, the time of milking, the comparatively short distance from this city, with the ready and rapid means of transit, the cool and especially even temperature, are some of the important causes going towards giving this class of milk the low bacterial count that it as a whole shows.

The standard set by this city's Board of Health for non-certified milk is 500,000 bacteria per c.c. This standard holds throughout the year. Chart II shows that but very few samples exceed this figure. From July, 1908, to July, 1909, 80% came within this standard; from 1909 to 1910, 93%; from 1910 to 1911, 94%; from 1911 to 1912, 97%. I believe that a bacterial standard of 200,000 bacteria per c.c. should replace the present one. Two hundred thousand bacteria per c.c. is a figure that all the dairies could come within with but little effort. It is a figure that the majority continually come within even now; in fact if we take a standard of 100,000 bacteria per c.c. we find that the majority of samples are within even this figure. From July, 1908, to July, 1909, the samples below 100,000 bacteria per c.c. were 62%; from 1909 to 1910, 81%; from 1910 to 1911, 80%; and from 1911 to 1912, 82%.

CHART II.

Bacteriologic Examination of Milk Samples from Shippers. Taken from Cars and Boats upon Arrival in San Francisco.

Bacteria per c.c. in thousands.	1908-1909 %	1909-1910 %	1910-1911 %	1911-1912 %
Below 10	11.3	10.1	9.6	17.0
10 to 50	37.0	55.3	47.0	47.5
50 to 100	14.0	15.2	23.2	18.2
100 to 500	17.4	13.0	14.2	14.3
500 to 1,000	7.0	4.0	5.1	2.3
1,000 to 10,000	9.3	2.4	0.9	0.7
Over 10,000	4.0	0.0	0.0	0.0
	100.0	100.0	100.0	100.0

There are a few other seaboard cities, Eastern and Western, that show almost as low a count for this class of milk as given in charts II and III, but in all cases their low count is obtained only after the rigid enforcement of icing the milk from the time it is drawn until it practically reaches the consumer. None of the milk belonging to this class, arriving in San Francisco, has been iced either at the dairy or during transit. This expensive method of obtaining a bacteriologically clean milk has been found unnecessary with us, due no doubt to the various local and climatic conditions mentioned above; for were it not for these, icing would be no doubt as necessary with us as it is practically everywhere else.

CHART III.

Bacteriologic Examination of Milk Samples from Shippers. Taken from Cars and Boats upon Arrival in San Francisco. By months 1911-1912.

	Bacteria per c.c. expressed in thousands.					
	Below 10	10 to 50	50 to 100	100 to 500	500 to 1,000	1,000 to 10,000
Months	%	%	%	%	%	%
July	4.9	45.5	19.8	23.9	5.9	0.0
August	1.3	55.0	20.2	16.0	7.5	0.0
September	2.5	48.0	20.0	25.2	4.3	0.0
October	0.0	37.5	28.5	28.8	5.2	0.0
November	0.9	49.5	32.0	16.5	0.9	0.0
December	5.3	63.0	26.4	5.3	0.0	0.0
January	1.9	56.7	31.5	9.0	0.9	0.0
February	0.0	54.3	29.4	12.8	3.5	0.0
March	32.3	44.0	10.5	13.2	0.0	0.0
April	32.2	39.2	10.3	12.1	3.2	3.0
May	30.3	47.2	8.0	12.0	2.0	0.5
June	18.0	53.0	13.0	15.0	0.8	0.2

What has also been of great importance in obtaining the low bacterial count, is the score card standard set by the city board of health, for all dairies supplying this market with their products. The board has at all times at least two inspectors (veterinarians) among the dairies enforcing this score-card standard for sanitary conditions of buildings and equipment, health of employees and stock. Failure to reach the required percentage of cleanliness, etc., demanded, results in the refusal of entry into this city of the products of those dairies.

On the morning or evening of a milk raid, the samples are collected by inspectors with the utmost care and immediately placed in specially prepared sterile glass containers. The milk in the can is first thoroughly agitated with sterile mixers, and from each is taken 60 c.c. by means of a sterile dipper (a separate dipper being part of the container for each bottle), and this is immediately poured into the glass jar. The jar is labeled with the dairy number, and with nine like containers is placed in a specially prepared ice-box. At each raid anywhere from 30 to 80 separate samples are taken, and within fifteen minutes after the last one is obtained, they are delivered at the laboratory. If from a night raid, the milk is not examined until the following morning, but being very well iced, and besides this placed in a refrigerator, we have found that no noticeable increase in the count takes place through the delay in examination. The samples arriving in the morning are of course examined at once.

Until four months ago, the routine examination of the milk, bacteriologically, consisted in plate counts on nutrient 2% agar (plus 1.5%). Dilutions of the milk were made 1 to 100 and 1 to 10,000, and incubated 48 hours at 37 C. Through a change in the city administration and a consequent partial change in the laboratory force, this simple plating method was considered to be of too little value for the purpose of keeping a check on the sanitary conditions of the dairies and the handling of the milk. Dissatisfaction with this method that told but part of the story only, led to the adoption of the direct microscopic examination of the centrifuged sediment.

A modified Stewart, disk-centrifuge, which had been used for a short time and discarded by those in charge during a previous administration, was resurrected. It had been originally used when the laboratory was situated in another building, where both alternating and direct currents were available, but the present quarters are provided with but one current unsuitable for the machine. The difficulty has been overcome by adjusting the aluminum disk, after very slight alteration in the pivot hole, to a high-power Purdy centrifuge. The result is most satisfactory.

Our routine method for preparing the milk sediment for microscopic examination is as follows: After shaking the bottle containing the milk twenty-five times, 2 c.c. of the fluid is withdrawn by means of a sterile pipette and delivered into one of the small glass tubes which has previously been closed at one end with a rubber stopper. We have found that it is sufficient to place a stopper at but one end of the tube instead of at both ends, as usually done. The tubes are placed in the disk after it is placed in the centrifuge, since the placing of the twenty vials before its adjustment often leads to a loss of part of the sample. The cover is then placed on the disk and the centrifuge run for ten minutes at its maximum speed of about 4,500 revolutions per minute.

The tubes are then removed from the disk in the rotation in which they had been placed in it. As many glass slides as there are samples are spread out on a table in a dust-free part of the laboratory and with a grease-pencil each one is marked with a number corresponding with the sample number. A circle having an area of four square centimeters has been cut into the table. A slide is then placed over it, and in the center of the circle appearing through the slide is placed a drop of distilled water.

The cream that has gathered at the open end of the vial is removed with a platinum loop and the milk, in order not to disturb the sediment, is carefully poured into a waste jar. The rubber stopper is then removed, and the sediment on it is thoroughly smeared over the four centimeters; the drop of water allowing a thin even smear to be made. It is usually necessary to spread out the drop that forms on removing the stopper from the slide, by means of a platinum needle.

The smears are allowed to dry (about 3 to 5 minutes). To fix the smears and at the same time remove most of the butter fat, the slides are placed for five minutes in dishes containing equal parts ether and alcohol. On removal they are quickly drained and spread out in order that the solvent may evaporate. They are then stained.

After trying the various recommended stains, we have made up the following one which is most satisfactory. Saturated alcoholic sol. of fuchsin, 2 drops; sat. alcoholic sol. methylene blue, 20 drops; distilled water to make 15 c.c. The stain is allowed to remain on the films for three minutes, then gently washed off with tap water, drained and dried between filter-paper.

The microscopic examinations of the films are made with a (Bausch-Lomb) twelfth-inch immersion objective and number 10 eye-piece. The bacteria appear blue on a light pink background. The "pus-cells,"—nucleus blue, protoplasm dark pink. The picture is very clear and quite beautiful.

Each bacterium per field is considered as representing a colony on a one-in-ten-thousand dilution plate. As will be seen from chart III, the colonies in such a dilution plate are usually few, and as the bacteria per microscopic field are correspondingly so, a quick survey of at least a dozen fields is easily made, and from this an average taken. This number multiplied by ten thousand gives the bacteria per c.c. in the original sample.

We have checked our microscopic results against two hundred and fifty plates of the ten thousand dilution, and have found them to agree close enough to continue the microscopic method. Neither method is perfect, but only approximate. With the plate method many bacteria, in spite of thorough shaking of the milk, remain clumped and grow as one colony; many are killed by the temperature at which the agar is poured, and many no doubt fail to grow at incubator temperature (37 C.); and again, after 48 hours' incubation, a "spreader" may obscure many colonies. With the microscopic method not all of the bacteria are thrown down, even after ten minutes centrifuging; some are washed out of the sediment in pouring out the milk from the vial, and some no doubt remain on the stopper in spite of careful spreading

on to the slide. But with the latter method we get our count the same day as the samples are received, instead of waiting 48 hours, as when plates are used, also there is a great saving of material (media) and time in cleaning glassware; but most important, we get an idea, without the further cultural work that is necessary with the plate method, as to the kinds of bacteria we are dealing with and to the number of "pus-cells" present.

As the diagnostic value given by the number of leukocytes present in milk is still being questioned by the best authorities, but little attention has been paid to that part of our microscopic pictures. Every sediment contains of course some cells. The average number per field being about five, but two or three times this number we find to be not uncommon.

We have rarely found streptococci in abundance. In looking over a dozen fields of almost any sample, one or two short chains are found. In the samples where they appeared in large numbers, and where they were the predominating type of bacterium, they proved of great significance. For example, in three cases in which the samples showed numerous streptococci, and an inspector was immediately dispatched to the dairy from which the milk had come, the following conditions were found to exist: In one instance one of the herd had the "forward udders and bag affected by a black foreign growth, which split and bled on pressure." Another case showed cows of a herd affected with diseased udders. A third case was due to dehorning. This operation had been very recently done. "Suppuration and necrosis of horn butts were found to exist and large quantities of pus were present about the heads of several cows. By rubbing their heads against one another's body the infectious material and pus was so distributed that it was an easy matter for it to get into the milk." In one case investigated because of streptococci appearing in the milk, it was found that the milk cans returned to the city were dirty and of strong odor, and were being refilled without being first given a thorough cleansing.

Though most cities deem it worth their while to make bacteriological examinations of both creamery and wagon milk, we have considered examinations from these sources to be of too little significance to repay us for the time they would consume, believing the control of the source of supply to be of most value. The sanitary conditions of the local creameries and milk depots, etc., are constantly under inspection. Their water supply being the same as is furnished to the city in general, is thus regularly examined bacteriologically as well as chemically. The health of their employees is under the control of the board's medical inspectors.

There is at present pending an agreement between the Milk Dealers' Association and the Milk Drivers' Union, regarding a daylight delivery (7 a. m. to 5 p. m.) only. Should this agreement go into effect, it is proposed by the dealers to pasteurize all of the general supply. It is expected that the agreement will go into effect at the latest, January 1st, 1913.

Whenever the milk supply of a city is pasteurized, the bacteriological examination and the general control of the supply becomes more imperative than ever before. To explain why this should be so, it will be necessary that the pros and cons of pasteurization be stated.

The principal advantages to be gained by pasteurization are: A great reduction in the number of bacteria. This leads to the following results: Protection from infection with diseases usually transmitted by milk; reduction of the infantile death rate; the enhancing of the keeping quality of the milk.

From the foregoing it would seem that the general adoption of pasteurization could only lead to good results. And so it would if the following objections to the method were fully recognized by the health department.

Pasteurized milk instead of souring usually putrefies. This is due to the fact that the lactic acid bacteria are destroyed in the process, then giving free rein to the mutiplication of undesirable, putrefactive, sporebearing organisms that are not killed, and which had before pasteurization been held in check by the harmless lactic-acid producers.

Another objection is that pasteurization is inadequate, for where before subjecting the milk to the process, it may show a count of 1,000,000 per c.c., the destruction of all the bacteria might still render the product unfit for consumption, as the toxins and products of their metabolism are still present. This is especially dangerous where infants and invalids are concerned. It is claimed by some authorities that undesirable changes may occur by heating which results in making the milk less digestible, particularly in the case of infants. The most serious objections are those relating to the possible change in sanitary conditions in the handling of milk before and after pasteurization, and of the repasteurization of old milk. Carelessness in handling after pasteurization may result in serious contamination of the product. "Pasteurization will put back improvements on the source of supply and encourage dirty habits, the farmer understanding that it is not necessary to be particular, since the dirt that gets in is going to be cooked and made harmless." Another important point against pasteurization is the false security given by the label, "Pasteurized milk," on the bottle, for the age and the subsequent handling of the product are not guaranteed by the label.

Now the above objections are most weighty, but each and every one of them, with the exception of the question of the digestibility of pasteurized milk, and which objection has practically been settled in the negative, are up to the health authorities. The general adoption of pasteurization would necessitate more rigid field and laboratory control of the milk supply than has been in vogue heretofore. Also the enforcement of the best method of pasteurization ("holder" process—62.8° C.). With such control of the product, all of the value of a pasteurized milk supply would be gained and none of its objections realized.

POST OPERATIVE ACIDOSIS.*

By CHARLES G. LEVISON, M. D., San Francisco.

In former years when chloroform was in general use as an anesthetic, conditions at that time called uremia, secondary shock and latent sepsis were frequently observed. With the introduction of ether, however, these conditions have been less frequently seen. The untoward effects of all anesthetics during the past 10 years have been steadily growing less as a result of the following factors:

1. The large reduction in the quantity of the anesthetic consumed on account of the drop method plus nitrous oxid, morphine, scopalamin and novocain.

2. Shorter duration of operation.

3. A shorter period of preliminary starvation and purgation.

The subject of post-operative or post-anesthetic acidosis was unknown to me up to ten years ago and it was called to my attention by the following experience:

A healthy unmarried girl 23 years of age was operated upon under chloroform anesthesia, for a small ovarian cyst; the operation was of short duration and was without incident; she progressed satisfactorily for two days when she began to grow very restless; vomiting was persistent; the urine was profuse and practically normal; the examination for albumin, sugar and urea was negative. The patient did not produce a good impression but nothing definite was observed.

After numerous consultations a diagnosis of uremia was made despite the fact that the urinary findings were not suggestive of this condition. She developed a stupor from which she was aroused with difficulty and on the fourth day she died in convulsions; the temperature was normal.

The autopsy revealed a complete healing of the field of operation with no evidence of peritoneal irritation. The liver was enlarged and nutmeg in appearance, signifying fatty degeneration. Microscopical examination of the liver showed fatty degeneration of the periphery of the lobules with hyaline degeneration of the cells around the central vessels. While the microscopical examination of the kidneys showed a certain amount of change in the parenchyma, it did not show enough to account for the outcome. The real cause of death remained "in dubio" until my attention was attracted to an article by Brewer on acetonemia following a simple operation for appendicitis under chloroform anesthesia; this article satisfied me that my patient had died of a similar condition.

Since that time so much has been written that no attempt will be made to review the literature but only the practical points of the situation will be discussed.

A knowledge of some of the metabolic processes of the liver is essential before the prophylaxis and treatment of this condition can be properly understood.

The influence of diet upon the development of acidosis: Proteins in excess result in the excretion of acid products; these do not appear to be injurious; if carbohydrates are withdrawn for any length of time acetone and diacetic acid appear in the urine; they generally disappear as soon as carbohydrates are again given.

Under an excessive fat diet acetone rapidly makes its appearance in the urine. This has been shown by clinical experience as well as by experiments upon animals.

Chemical pathology: Acetone represents the lowest derivative in one of the fatty acid series and it results from the oxidation of diacetic acid and B-oxybutyric acid. It is found under apparently *normal* circumstances in the urine, but when diacetic and B-oxybutyric acid are present it is an evidence of a toxemia in consequence of the destruction of liver cells, for it has been proven that acetone is formed in the liver. If the fatty acids are not entirely oxidized they must unite with the alkalies in the blood, which combination withdraws the alkaline bases from the tissues and so acidosis results.

Glycogen is produced in the liver by the transformation of carbohydrates. If these substances are withheld the liver will utilize the fat of the body. When this process occurs as in starvation, acids appear in the urine, hence it is seen when glycogen is present in the liver in sufficient quantities that there is no transformation of the fat of the body with its consequent acidosis.

Effects of anesthesia: It has been shown clinically as well as by experiment that all anesthetics cause degeneration of the liver cells. Clinically the drop method of ether anesthesia has been found to reduce the output of acetone by one-half and even more when the fats in the preliminary diet have been limited and carbohydrates permitted in excess. If there is any disturbance in the liver in consequence of a deficient metabolism, as shown by the excretion of acetone, the organism may be able to take care of the anesthetic without any disastrous results, but when diacetic acid is present before operation this condition is always aggravated and frequently results in acid intoxication.

Classification.

1. *Sub-acidosis:* Here acid products are present without causing any symptoms.

2. *Acidosis:* Definite symptoms such as per-

* Read at the Regular Meeting of the San Francisco County Medical Society, July 9, 1912.

sistent vomiting and marked restlessness are present.

3. *Acid intoxication:* The clinical picture is very vivid and is marked by coma, delirium and convulsions and is preceded by restlessness and vomiting.

Prophylaxis: As experience has shown that acidosis and its allied conditions may be due to a diminunition in the ingestion of carbohydrates, this should be avoided as a preliminary to operation. It has been my practice to give bread and potatoes with luncheon on the day previous to operation; in this way some of the metabolic problems are solved. Since this method has been observed the cases of vomiting and restlessness which so often were due to sub-acute acidosis are seldom seen.

Post operative prophylaxis: In abdominal conditions as soon as the patient commences to pass flatus, gruel is given to avoid the possibility of starvation acidosis. In other operations, not abdominal, carbohydrates may be given as soon as the tendency to nausea has subsided.

Operations should be postponed upon patients having acetone bodies in the urine until these bodies have disappeared as a consequence of treatment. Up to this time routine examinations for acid bodies have not been adopted, but it is only a question of time before these examinations will be as carefully carried out as they are for other pathological products.

While my observations in this respect have never been confirmed in the laboratory, I am convinced that by giving patients starchy foods as early as possible after operation, a more satisfactory convalescence follows.

Anesthetic: As before stated anesthetics have been shown to exercise a harmful effect upon the liver cells which results in the excretion of acetone and its allied bodies, hence every effort is now being made to lessen the quantity of the narcotic administered.

Crile, in this respect has done more than anyone by his method of anoci association. He employs ¼% novocain solution without adrenalin, preceded by scopalamin 1-100 plus 1/6 morphine, and he follows with nitrous oxid plus oxygen. At times, if it becomes necessary, small quantities of ether are given. This combination produces excellent anesthesia with the least possible damage to the liver. Crile has demonstrated to his own satisfaction that post operative acidosis can be practically eliminated by this procedure.

Treatment: If acidosis in any form supervenes upon an operation, this condition can be recognized by the usual tests. If the patient vomits so that feeding by mouth is impossible, it is important to administer glucose by rectum; this can be done by introducing slowly 1 oz. of glucose plus 4 oz. of saline every 4 hours. Glucose when introduced by rectum is entirely consumed and appears to answer the purpose very well. If glucose is injected subcutaneously, my experience has shown that it is eliminated without change in the urine, showing that this subcutaneous method should be discarded. Intravenous injection of a 2.4% solution which is isotonic has been advocated, but I have had no personal experience with this method. If the patient is not vomiting, gruel should be given in quantities with sugar. Concerning the employment of bicarbonate of soda, opinions differ as to the real effects of this drug. My impression is that in order to obtain any effect it must be given in very large quantities, giving as high as 1 oz. every 2 hours in severe cases of acidosis. At times this drug appears to accomplish, when persisted in, definite results.

In conclusion I desire to call attention to the report of the Committee on Anesthesia that was presented at the last meeting of the A. M. A. It represents the last word on anesthesia and is well worth a very careful study.

Discussion.

Dr. Clarence Quinan: The acidosis problem is obviously a very complicated one. Dr. Levison's paper is especially interesting to me. I do not know, however, whether the morbid changes he describes may be regarded as a definite phase of the acidosis. From a study of the action of chloroform upon blood serum, it appears not improbable that in such cases as he relates we must reckon with the lipoid bodies of the serum, or of the tissue cells. I have pointed out that human serum contains in the neighborhood of one per cent. of these fatty bodies, and that they are for the most part loosely bound to a group of insoluble globulins. It is of course well known that chloroform is a powerful lipoid solvent. The tentative supposition may be advanced, therefore, that the degenerative changes which sometimes follow chloroform anesthesia may be due primarily to the dissociation of a lipo-globulin complex.

From the fact that the serum lipoids are not readily attacked by dilute chloroform, it seems likely that it is the lipoids of the cellular structures, especially, which are affected in such cases.

Dr. H. D'Arcy Power: It seems to me that acidosis is rather associative than causative. In particular, Dr. Fleischner's last case, where he had the cyclic vomiting, the acid test was applied steadily yet the symptoms appeared before the acid. The test is an accurate one and often shows diacetic acid in cases without severe symptoms, yet here we had cyclic vomiting before the acidosis. It is difficult to see how the latter can be considered the cause. In so far as treatment is concerned, it would appear that in earlier days the very common treatment of nearly all liver conditions by the use of alkalies was justified by what has been claimed this evening.

Dr. Fleischner, closing discussion: I have practically nothing to add to the paper I read. I tried to make it perfectly plain that I appreciated the fact that the acidoses which I observed were associated with different conditions, possibly results. I feel that in portraying this subject, one errs unless he tries to draw attention to the fact that this form of acid poisoning is essentially responsible for symptoms which can be relieved by combating the acid condition. Whether it is causative factor or result, I do not know, and apparently no one else seems to know, but these acid intoxications are responsible for conditions in all forms of disease which make the patient uncomfortable. How and why they come, I do not know, but I do know that patients are more comfortable and better after their treatment.

THE IMPORTANCE OF NON-DIABETIC ACIDOSIS.*

By E. C. FLEISCHNER, M. D., San Francisco.

The immense amount of work that has been done upon this very interesting and poorly understood subject since 1877, when Walter first reported acid intoxication in rabbits, gives one some idea of the bearing that it must have on the various processes of health and disease. A careful résumé of the literature is strikingly discouraging, however, because it reveals the fact that many of the features of acid poisoning are as obscure to-day as they were 30 years ago. Whether the condition is essentially a symptom of certain pathological states, whether it is an etiological factor of certain pathological processes, or whether it is simply an associated condition of numerous diseases, are all factors that must be taken into consideration, and yet the diversity of opinion as expressed by different experimenters is such as to overwhelm one in an endeavor to formulate definite conclusions.

Of one point, however, we may be certain and that is that in the large number of conditions in which acidosis is either an etiological factor, a symptom or a pathological result, we may by combating the acidosis improve the patient's condition. As clinicians, that is a factor which must constantly be taken into consideration.

The object of this paper is not to draw attention to any new data upon this much complicated subject, but rather by reporting a number of interesting cases in which acidosis was a prominent feature, to recall the fact that acetonuria and diaceturia are far more frequent than those urinary conditions for which we habitually test, and when present are unquestionably responsible for, or at least represent a part of, a distinct toxic process. Although this paper is essentially a clinical one, it may be well to at least call attention briefly to the experimental facts that we have at our disposal from which conclusions can be drawn.

Ewing, in the Transactions of the Association of American Physicians, 1908, calls attention to two experimental prototypes of acidosis. First, the toxemia resulting from the ingestion of HCl, first described by Walter; and second, the toxemia resulting from liver extirpation, or following an Eck's fistula, first described by Minkowski. Animals subjected to these two experiments show definite pathological and chemical differences. Those dogs suffering from HCl poisoning show no prominent post-mortem changes. The urine shows a marked excess of acetone compound. The ammonia is proportional to these acids and the amino acid nitrogen is slightly increased. The clinical types of acidosis comparable to HCl poisoning in animals are diabetes, with which this article does not deal, Kussmaul's coma, starvation and febrile acid intoxication. Animals with Eck's fistulæ or whose livers have been extirpated, show on the contrary excessive fatty degenerative processes. The urine contains an excess of lactic acid, glucose is often present; the acetone products are secondary, ammonia is present in excess of the fatty acids and the amino acid nitrogen is much increased. Allied to these clinically, we have cases of phosphorus poisoning, pernicious vomiting of pregnancy, acute yellow atrophy of the liver, eclampsia, delayed chloroform poisoning and cyclic vomiting.

It is at least interesting to note the difference in origin of the high ammonia content in the two groups of cases. In the first, the high ammonia represents an effort to neutralize the acid products. In the second group of cases, it is due to improper formation of urea incidental to the marked destruction of liver tissue.

Up to 1905 most of the theories concerning the formation of acid products were purely problematical, and since that time, largely through the work in Knoop's laboratory, some of the more obscure points have been elucidated although the question of the toxicity is still a much disputed one. In the early eighties Gerhardt discovered the Fe Cl_3 reaction in diabetic urine, and about the same time the younger Von Jaksch isolated diacetic acid, which he found responsible for this reaction and to which he ascribed all the symptoms of acid poisoning. Stadelmann in 1883, in an effort to understand the high ammonia content in diabetes, discovered Beta oxybutyric acid.

As a result of the investigative work done by Knoop in 1905, a great deal was added to our knowledge of the formation of the acid products. Before that time it had been definitely conceded that the acetone bodies might be formed from either proteins or fats, but the process had never been observed. Geelmuyden had demonstrated that the addition of large amounts of fat increased acetonuria. Rosenfeld showed that the acid products appeared in the urine in carbohydrate free diets. Hirschfeld and Geelmuyden, experimenting on carbohydrate administration in the acidosis of starvation, had concluded that from 50—100 gms. of carbohydrate served to abolish the acetonuria. It remained, as has been stated, for Knoop to demonstrate the formation of the acetone products from the fatty acids. Under normal conditions the aromatic acids are destroyed so quickly in the body that the steps can not be followed. By adding the Benzen radicle C_6H_5 to the fatty acids, Knoop retarded oxidation and was able to show the formation of the acetone bodies. Embden passed aerated blood through excised livers and was able to demonstrate the presence of a small quantity of acetone in the blood. He added certain organic acids to the aerated blood on repeating the same experiment and was able to increase the formation of acetone. Working in the same laboratory, Baer and Blum fed these same aromatic acids to diabetic cases and were able to increase the acetonuria. Having demonstrated that fat ingestion through the action of aromatic acids is responsible in certain pathological conditions for the development of acid intoxication, it is perfectly rational to assume that proteins through their amino acids have some part in the same

* Read at the Regular Meeting of the San Francisco County Medical Society, July 9, 1912.

process. The amino acids have only to lose the NH_2 group to revert to fatty acid and as such act in the same manner as the acid radicles derived from fat tissues. Folin of Boston, before the Association of American Physicians, 1907, in discussing the acid intoxication theory, asks the following questions:

1. "Why does the oxidation of carbohydrates diminish the formation of acid products?

2. Why are oxybutyric and diacetic acids formed rather than lactic and oxalic acids?

3. Is the universal assumption that oxybutyric acid is the forerunner of diacetic acid and acetone a correct one?"

To these questions may be added:

4. Are acetone and diacetic acid ever present in quantities sufficiently large to produce toxic symptoms *per se*?

5. If not, are they responsible for the toxemia by their action on the pathological processes?

6. What bearing upon acid intoxication has alkali absorption from the tissues?

In short, in discussing acidosis one is overwhelmed by a large number of unsolved problems; and there is no field in experimental medicine today so fertile as that which deals with acid intoxication, its causes, its effects, and its meaning. Edsall, in a discussion of acidosis in the *British Medical Journal,* touches on some of these points. He states the usual theory that acetone and diacetic acid are derivatives of Beta oxybutyric acid, but that, on the other hand, it must be a reversible process because by feeding animals diacetic acid, Beta oxybutyric acid is found in the urine. He further states that acetone and diacetic acid are never present in amounts sufficient to be toxic, but that these favor autolysis and that the grave symptoms often accompanying their presence may be due to their autolytic action.

A great deal of time might be given to further portrayal of the subject under discussion from the theoretical and experimental side, but unfortunately this would not enable us to draw any definite conclusions as to even a problematically correct understanding of it. We know only that this toxemia is associated with a great many pathological states and that it is a clinical entity which must be combated, if not for the toxic effects that the acid products themselves have, at least for the very serious symptoms which are so frequently associated with them.

Most authors and most text-books give a detailed classification of the diseases with which acidosis is most often associated, and to make a paper complete this is unquestionably reasonable. It hardly seems exaggeration, however, to state emphatically that there is scarcely a pathological condition to which humans are heir, with which there may not be associated at times a severe degree of acid intoxication. Whether it be to the internist, the surgeon, the pedriatrist, the obstetrician, the aurist, or oculist, patients will constantly present themselves with obscure symptoms, the origin of which either primarily or secondarily is an acid poisoning. The following conditions are generally recognized, however, as most frequently giving rise to acidosis:

1. *Starvation.* There is probably no single condition that is more frequently responsible for the presence of acid products in the urine than actual starvation, either through restriction of diet or through lack of ability to assimilate the food that is given.

2. *Gastro-intestinal Diseases.*

3. *Specific Infections,* Diphtheria, Pneumonia, etc.

4. *Diabetes.*

5. *Cachexia* from Malignant Disease.

6. *Poisons.* Phosphorus, Morphine, Sodium. Salicylates, Phloridzin.

7. *Anesthetics.*

8. *Acute Yellow Atrophy of Liver.*

9. *Toxemia of Pregnancy,* Eclampsia.

10. *Recurrent or Cyclic Vomiting of Childhood.*

11. *Ingestion of Large Quantities of Fat.*

It is truly surprising with the very great simplicity attached to the qualitative tests for diacetic acid and acetone that so many urinalyses are done without any attention being paid to their presence. Both tests are far more simple than the Fehling or allied reactions for sugar, they are found positive a thousand times more frequently than the sugar test, and yet, surprising as it may seem, many laboratory experts neglect them. There is no more striking reaction in chemical pathology than the port wine red color which is developed when tincture of the chloride of iron is added to a urine containing diacetic acid; and the test for acetone by adding sodium hydrate and iodine to the urine and gently beating, is surely a simple one, for we are all acquainted with the odor of iodoform, which is developed along with the presence of iodoform crystals if the amount of acetone is considerable.

T. S. Hart of New York, in the *Archives of Internal Medicine,* 1911, describes a simple quantitative method of determining the amount of diacetic acid. He has two standard solutions: I, contains ethyl acetate 1.0, alcohol 25., water 1000.0; II, contains Fe Cl_2 100, H_2O 100. To 10 cc. of I he adds 1 cc. of II and to 10 cc. of urine he adds 1 cc. of II. He dilutes the urine sufficiently to make the color the same as that obtained with the standard solutions and the amount of dilution necessary determines the index. His conclusions are as follows:

I. Acidosis index is a measure of the acidosis based on the depth of color obtained with the Fe Cl_2 reaction.

II. The values thus obtained run parallel with a polariscopic method, to ammonia output and chemical determinations.

III. The method is probably better than the polariscopic method, basing his conclusion on Magnus-Levy's statement that polariscopic values are exaggerated.

IV. The method is better than ammonia determinations, especially if alkalies are being given.

V. It is simple.

It is of course very questionable whether quantitative tests are essential in the determination of degree of acidosis. After all, the problem deals with so many uncertainties that the results obtained by quantitative reactions are by no means always an indication of the clinical condition. One sees constantly cases in which the amount of diacetic acid and acetone is very small and yet the symptoms very marked, and the reverse is likewise frequently encountered.

Very little mention has been made in this paper of Beta oxybutyric acid, not because the importance of this toxic substance is not thoroughly appreciated but because the tests for it are so complicated as to render them almost impossible for the clinician to perform.

Without further elaboration on the causes and results of acid intoxication, the following reports of a number of interesting and obscure cases will graphically show the very important role that acidosis plays in disease:

I. Diagnosis: Colitis and acidosis. Mrs. A., age 54, was first seen in February, 1911, suffering from a typical attack of mucous colitis. Except for a marked indicanuria at that time the urinalysis was negative. She was put under treatment and her symptoms rapidly improved. Two weeks later she was taken acutely ill with general aches and pains, and of her own accord took 15 grains of aspirin. The following morning she developed a fine papular erythematous rash over her whole body. Her temperature was normal. Throat and tongue negative. From the appearance of the rash it might have been either a toxic erythema of drug or intestinal origin or German measles. The rash persisted four days and with its disappearance patient developed a very severe frontal headache. This persisted and with it the blood pressure rose to 180 systolic. Coincidental with the rise in blood pressure, patient complained of a peculiar disturbance in sight which she described as a sensation of wheels turning around and around. This syndrome immediately suggested a kidney complication, and a urinalysis showed a trace of albumen and some granular casts. More as a matter of routine than otherwise, acetone and diacetic acid were tested for and both were present in excessively large amounts. Patient was immediately put upon enemas of glucose and bicarbonate of soda, 4% and 3% respectively. Bicarbonate of soda in 10 grain doses was given every 2 hours, and a full carbohydrate diet prescribed. At the end of one week patient's general condition was much improved. Headaches had greatly ameliorated and the eye condition was less marked. An examination of the eye showed no tendency to glaucoma, of which the symptoms were suggestive, but a marked injection of the choroidal vessel. For two months subsequently patient had occasional return of the headache and eye symptoms coincidental to reappearances of the diacetic acid and acetone in the urine, but they rapidly disappeared under treatment.

II. Diagnosis: Phlebitis of femoral vein. Acidosis. J. R. B., age 10 years, was taken suddenly ill March 25th, 1911, with excruciating pain in the right thigh and leg. The exact location of the pain could not be defined. With the appearance of the pain there developed slight rise in temperature and loss of appetite. Questioning revealed the fact that patient had suffered with a similar attack 5 weeks before for which he had been confined to his bed for 7 days. Physical examination was negative as far as the thorax and abdomen were concerned. The right lower extremity was swollen in its entirety but there was no edema into the subcutaneous tissues. On measurement, the circumference of the right thigh was 2 cm. greater than left thigh and the right leg was 1½ cm. greater in circumference than left leg. Over the course of the femoral vein there was tenderness. Motion was limited in every direction by the excruciating pain that patient suffered. The extremity seemed at greatest ease when patient was in erect position and leg was hanging. Spine was normal. X-ray picture of hip joint and thigh negative. Leukocyte count 12,000. Differential count negative. Urinalysis negative except for excess of acetone and diacetic acid. It was learned that patient had been eating meat three times a day and that bowel movements for some time had been very foul in odor. Under treatment, which consisted of carbohydrate diet, glucose frequently during the day in the form of Karo syrup, sodium bicarbonate grains x q 2 H, symptoms subsided entirely in eight days.

III. Diagnosis; Nephritis and acidosis. Mrs. R. S. Age 42. Family and previous history negative. The duration of present condition is rather indefinite. The chief symptoms are headache, dizziness, edema of lower extremities, dyspnea on exertion and disturbance in vision. The history is not at all satisfactory as patient has no idea of duration of illness.

The physical examination revealed a very obese woman of 42. Heart. Percussion absolutely unsatisfactory on account of thickness of thoracic wall, but definite hypertrophy unquestionably present. No murmurs. Marked accentuation of second aortic. Abdomen. No ascites. Liver extends two fingers below free border of ribs. Decided edema of lower extremities. Blood pressure, systolic 180. Retinal examination shows a hemorrhagic retinitis. Urinalysis: sp. grav. 1026. Albumen .05%. Sugar negative. Microscopical examination shows many hyaline and granular casts. A very large amount of acetone and diacetic acid is present.

Patient was put to bed and placed upon large doses of alkali and glucose. With the disappearance of her acidosis her symptoms greatly improved, despite the severe degree of nephritis.

IV. Diagnosis: Septicemia and acidosis. B. D., 14 years. Family and previous history negative. One week before patient was seen she was suddenly taken ill with malaise, headache, and high temperature. These symptoms had persisted, the temperature being 104° in the morning and normal at night. There had been no chill or septic sweating. For 24 hours patient had complained of tenderness along the anterior cervical glands on the right side. There had been no other local symptoms referable to any other organ in the body.

Physical examination was negative with the exception of the hypertrophied and tender cervical glands and some congestion in the throat. Urinalysis was negative except for intense acidosis. W. B. C. 14,000. Polymorphonuclears 94%. In view of the septic temperature, even though inverse in character, the polymorphonuclear relative leukocytosis, and the tenderness over the cervical glands on the right side, a diagnosis was made of septicemia emanating from the throat. Blood culture was not done.

Treatment. On account of the intense acidosis brought on probably both by the high temperature and limited diet, alkalies were administered and carbohydrates given in large amounts. The symptoms subsided in a few days.

V. Diagnosis: Toxemia of pregnancy. Mrs. W. F., 34 years. Family and previous history have no bearing. Present illness began 7 days before patient was seen, in the eighth month of an apparently normal pregnancy, with backache and nausea,

which symptoms persisted 24 hours but ameliorated on the administration of cathartics. Forty-eight hours later the symptoms became very much worse and intense headache was added to the marked vomiting and backache. At the same time decided tenderness appeared in the right hypochondrium and patient developed slight temperature, 99°-100°.

Physical examination shows very well developed, well nourished woman of about 35 years. Cheeks flushed. Expression very apathetic. Atmosphere of room is permeated with an aromatic odor that suggests acetone and diacetic acid. This is particularly marked in the breath. Glands negative. Throat negative. Heart and lungs normal. Abdomen distended by eight months' pregnant uterus. Liver dulness begins at 5th rib and extends 2 finger's-breadth below free border of ribs. There is a very definite tenderness over the border of the liver. Fetal heart sounds audible and of good quality. Pulse 110. Temperature 101°.

Urine. Brownish amber, cloudy, acid, 1020, albumen 0.1%, sugar negative. Acid products, acetone and diacetic acid in great excess. Indican great excess. Microscopical examination showed many granular casts.

It seemed wise to temporize 24 hours, and patient was put upon full doses of alkalies and carbohydrates. At the end of 24 hours toxemia was greater, icterus had developed, all of the pre-existing symptoms were more marked, and it was deemed advisable to induce labor, which was done by Dr. Wakefield at 11 p. m. The alkaline treatment was continued. Patient went into labor at 5 a. m. and was delivered 8½ hours later. One of the most striking facts noted in connection with this case is that the acid products had disappeared from the urine within 18 hours of the time of delivery. Recovery was uneventful. This same patient has within the past month undergone a major operation. Within a few hours of the administration of the anesthetic she developed an intense acidosis from which she recovered relatively very slowly. It is interesting as suggesting the question of individual predisposition to acidosis.

VI. Diagnosis. Cyclic Vomiting of Childhood. G. Y., 6 Years. Family history has no bearing. Previous history: For three years patient has had spondylitis deformans. Up to 3 weeks ago patient had been for one year confined to her bed. Present illness began in May, 1911, with the occurrence of a very severe attack of persistent vomiting, which lasted several days. Since that time patient has had these attacks every month with one or two exceptions. Attacks can usually be foretold by loss of appetite, coated tongue, and a very bad odor to the breath. Temperature rises during the attack to about 101°, and there is some tenderness in the right iliac region. One very peculiar feature of these attacks is that at the end of them patient has a hematuria. There is no headache.

Physical examination at this time, which was between attacks, was negative except for the presence of a very marked deformity due to a tubercular spondylitis. Urinalysis was absolutely negative.

Treatment at this time was not instituted. Mother was furnished with Tr. ferri chloride and test tube and instructed how to test the urine every morning for diacetic acid, which test up to the onset of next attack of vomiting, two weeks later, was quite negative. Two weeks after the patient was seen, mother first noted the premonitory symptoms of an attack, and on the following morning patient began to vomit. The first specimen of urine that morning did not show any acid product, but the second urine voided 4 hours later contained a large amount of diacetic acid, which the mother detected, and acetone was also present.

Treatment. Patient was immediately put upon 4 hour enemas containing 60 grains of bicarbonate of soda in 4% sugar solution, and the enema was held one hour and in that way retained. Vomiting ceased at the end of 24 hours and milk of magnesia was immediately started by mouth, one drachm every hour until one ounce had been given. Glucose in the form of Karo syrup was given in large quantity with carbohydrates and sodium bicarbonate gr. x every two hours. The enemata were discontinued and patient rapidly recovered.

The diagnosis having been made, an effort was then made to prevent the attacks. Bicarbonate of soda gr. v, 3 times a day was continued, and patient put upon an easily assimilable diet. Mother was instructed on the appearance of premonitory symptoms to administer milk of magnesia one drachm every hour for eight doses, and increase the bicarbonate soda to 10 grs. every two hours, and to use glucose freely by mouth. Since these directions have been followed, three attacks have been aborted and the acidosis has not developed.

One might go on indefinitely reciting cases in which a profound degree of acidosis was a marked feature. A careful review of these cases can lead to but one conclusion, and that is either as a cause or result of many pathological conditions we have an abnormal metabolism characterized by imperfect oxidation and the presence of abnormal acid products in the urine. The subject is still so thoroughly in the experimental stage that one is not able to state exactly why acidosis is so frequently present. Likewise, one is confused to note that acidosis may be fairly marked and the symptoms relatively slight. A hundred unanswered and unanswerable questions might occur to everyone, but of one fact we may be definitely certain, and that is that either independently, or as a complication of other diseases, we have in medicine a condition of acid intoxication which either *per se* or indirectly is responsible for definite symptom complexes, and that it is the duty of every one of us to be on the alert for the development of this condition because, more than can be said for many medical disturbances, it can be absolutely relieved by appropriate treatment.

TRANSFUSION.*

By N. H. CHAMBERLAIN, M. D., Oakland.

Although in the broader sense, transfusion includes the introduction of any fluid into the body, even saline solutions, we will use the word only to mean the causing of flow of blood directly from the vessels of one human being into the blood vessels of another.

The ten minutes allotted me is so short I will omit reference to the history of transfusion, and will confine my remarks chiefly to the technic and briefly to the indications, contraindications and the citation of a few cases.

Of the various methods the first I wish to mention is that of the direct anastomosis of the radial artery of the donor with a superficial vein (usually the median basilic) of the recipient. This is known as Carel's method and is described in the *Bulletin of Johns Hopkins Hospital,* 1907, and very excellently described and illustrated by Crile in his book on "Hemorrhage and Transfusion," published in

* Read before the Section on Medicine of the San Francisco Medical Association, August 6th, 1912.

1909. This I will not attempt to describe for I have had no personal experience with it, and the operation is so difficult and lengthy as compared with other methods, as to be impracticable for the average surgeon. My description of technic will be confined to the two methods which I have used myself. The first is with Crile's canulae.

The instruments necessary for this operation are a set of Crile's canulae, two Crile's blood vessel clamps, a scalpel, a fine-toothed tissue forcep, a fine-pointed scissor, a hemostat with lock, a half-dozen ordinary hemostats, three mosquito hemostats toothed "Crile," small needles, needle holder and suture and ligature material; also several hypodermic syringes loaded with novocaine, or other local anesthetic, sterile vaseline and the ordinary dressings for wounds.

The donor and recipient are prepared by assuring them of the painlessness of the process, by cleansing surgically the left arms of each, and the preliminary hypodermatic injection of morphine or scopolomine, or both, about half an hour previous to the operation. The operator should have made himself thoroughly acquainted with both patients by a previous careful examination and history, and if the case is not urgent, the hemolysis test should be applied.

The donor and recipient are placed each on a surgical table, cotton inserted in their ears and their faces covered with damp towels. The patients are so placed with their heads in opposite directions that the left arm of each will rest comfortably on a small table placed between; the operator and assistant sitting on stools on opposite sides with the instrument and dressing tables within easy reach of the assistant. A nurse should be assigned to both donor and recipient, whose duty it is to change the face towels occasionally, reassure each as is necessary, watch their pulses, blood pressure and look out for their comfort. Unless the operation is done to relieve shock or hemorrhage, the recipient should usually be bled first to avoid acute cardiac dilatation, or rupture of the liver or spleen.

When all else is ready, the points of incision should be well cocainized. The left radial artery of the donor is exposed for a distance of three or four cm., the distal portion ligated, all small branches carefully ligated and cut and a Crile clamp applied to the proximal part as near as possible to the place where the artery comes out of the undissected tissues. The clamp is screwed down with great care so as not to injure the vessel. The artery is cut squarely across close to the ligature and the projecting intima trimmed even with the retracted coat of the vessel.

The arm of the recipient is lightly bandaged so as to slightly distend the veins, the vein is dissected out for a distance similar to that of the artery, its distal end is ligated, its branches carefully tied and severed, its proximal part clamped cautiously and the vessel severed near the ligature. A fine suture is passed through the end of the cut vein and threaded through the canula for traction purposes to pull the vein through the handle end of the canula. The end of the vein is turned back over the canula like a cuff and tied by a fine silk ligature in a groove next the handle. To the exposed intima of the vein is applied a little sterile vaseline, taking care none is introduced into the lumen of the vein.

By grasping the free end of the cut artery with the three fine-toothed hemostats, the artery is easily drawn over the canula and tied with a fine silk in the second groove. The clamp is removed from the vein first, then from the artery and the blood will begin to flow at once. The flow can be tested by noting the pulsation transmitted to the vein of the recipient. If insufficient, make gentle traction on the handle of the canula in the axis of the artery so as to stretch the artery slightly and the flow will be augmented.

A few points to bear in mind are to keep the wounds and exposed vessels moist with normal sterile salt solution continuously, avoid the introduction of air or vaseline or a blood clot into the vein. If there has been a serious slip in the technic, begin from the beginning again. By not trying to patch it up, valuable time will be saved. Always select as large a canula as you can easily use and select a vein not too large in proportion to the artery used. A large vein in a small canula will fill it so full as to cause an obstruction. Too large a canula will give trouble in stretching the artery over, and will increase the danger of injury to the intima. If the canula is not introduced in perfect line with the lumen of the vessel, the end will press against the wall and obstruct the flow of blood.

The second method referred to is that of Elsberg. The instruments required are Elsberg's canula and three little hooks or tenaculae, scalpel, a fine-toothed tissue forcep, a fine-pointed scissor, a half dozen ordinary hemostats, needles, needle-holders, suture and ligature material and the hypodermic syringes loaded with the local anesthetic as before.

Elsberg's canula may be described as a bivalve canula, with handle and thumb screw to adjust the blades of the instrument; the blades being armed with four hooklets to catch the cuff of the vessel, and so obviate the use of a ligature.

The technic varies from the Crile operation in that the canula is opened and placed over the artery and the blades closed and so used as a clamp to control the flow of blood when the artery is severed; also in that it is not necessary to sever the vein, or even lift it from its bed. After the canula is applied to the artery and the cut end of the vessel is cuffed back over the instrument, by the assistance of the three little tenaculae, the vein of the recipient is slit in the axis of the vessel and the canula is inserted through the slit into the lumen of the vein in the proximal direction. By turning the thumb screws the blades of the canula are separated and the blood allowed to flow. The rapidity of the flow can be estimated by testing the transmitted pulse in the vein of the recipient as already mentioned, and can easily be controlled by manipulation of the blades of the canula by means of the thumb screw.

The only accurate method of estimating the

amount of blood transfused is by very careful weighing of one or both patients before and after on finely adjusted scales. This, of course, is impractical and very unnecessary. Barring possible acute dilatation of the heart, there is little danger of the recipient getting too much blood. The chief anxiety is produced by the risk of the donor losing too much. As a rule, however, if the psychological influence has been carefully controlled, the symptoms of hemorrhage develops so gradually in the donor that there is very little excuse for passing the danger point.

Transfusion, though classed as a minor operation, should not be attempted without careful preparation and training on the part of the surgeon, and in any event should be looked upon as an operation of last resort. Normal salt infusion is so satisfactory as to serve in the majority of cases which suggest transfusion, and is not attended with the same danger.

Transfusion has been tried in a great variety of diseases, including carcinoma, sarcoma, tuberculosis, pernicious anemia, secondary anemias, leukemia, hemophilia, purpura, hyperthyroidism, chronic suppuration, shock and hemorrhage. Its greatest, if not only, success has been in the secondary anemias, shock and hemorrhage and to fortify an anemic patient against the dangers of a major surgical procedure. In cancer, tuberculosis and pernicious anemia it has been a failure.

Hemolysis is a danger to be always in mind, but as the test for tolerance requires at least twenty-four hours, and then is not always reliable, it is not available in the emergency cases.

Two cases in which accurate records are not available are mentioned briefly, each to emphasize a point already brought up.

One, a patient of Dr. Shiels, of about 50 years of age, with 30% hemaglobin, and a large fibroid of more than seven years' growth. Transfusion was done August 9, 1910. The hemaglobin August 11th, 1910, was 50% on which day an eleven-pound uterine fibroid was successfully removed by Dr. Porter, and the patient's condition following gave excellent promise of recovery. This patient died August 14th, of acute dilatation of the stomach.

A Mr. McG. had ulcer of the stomach and became practically moribund November 7, 1910, from hemorrhage, when transfusion was performed, which resulted in the immediate establishment of convalescence. After sufficient recovery he submitted to a gastro-enterostomy which was entirely successful, and he now enjoys excellent health.

Probably the most interesting and instructive case was Mrs. P., whom we first saw on February 21, 1910. She gave the clinical picture of the termination of a pernicious anemia, colorless, unconscious, and with a very slow, sighing respiration. A blood examination revealed:

Erythrocytes	620,000
Leukocytes	19,600
Hemaglobin	10%

An immediate transfusion was done as soon as Dr. McClurg, who made the blood examination, stated that the anemia was not pernicious but secondary.

The blood count next day, February 22, 1910, was—

Erythrocytes	960,000
Leukocytes	16,000
Hemaglobin	22%

March 8th, 1910, we found—

Erythrocytes	1,520,000
Leukocytes	6,400
Hemaglobin	27%

Another transfusion was done April 19, 1910, and July 11, 1910, the blood was—

Erythrocytes	1,810,000
Hemaglobin	35%

August 5th, 1910—

Erythrocytes	2,360,000
Hemaglobin	40%

September 21, 1911—

Erythrocytes	2,910,000
Hemaglobin	76%

March 7th, 1912—

Erythrocytes	3,860,000
Leukocytes	6,200
Hemaglobin	82%

Discussion.

Dr. W. I. Terry: I do not think I heard Dr. Chamberlain speak of transfusion in cases of illuminating gas poisoning; it seems to help these cases remarkably. I have done it in one case (moribund) without success, and I think that Dr. Eloesser did it in one case successfully.

I think mention should be made of the Brewer tubes because it is possible that they will ultimately supplant others, being more simple. They are glass tubes, coated with paraffin, paraffin oil, or vaseline (preferably paraffin). I have not yet employed them, but I shall do so now that we have the statement of Carrel that glass tubes coated with paraffin can remain months in the aorta of animals without producing coagula. He has also used rubber tubes coated with vaseline and the circulation has continued for several months in some of his dogs. There are a number of points in the technic which one gets from experience, but I think Dr. Chamberlain went over most of them very carefully. In connection with tuberculosis, I might state that Crile has carried out some work recently on animals, transfusing the blood of a bull into a markedly tuberculous cow at the Agricultural Experiment Station in Washington, and the animal apparently recovered from its tuberculosis. These experiments will be continued, however, before they are reported. It looks as though they might be important in connection with human tuberculosis if the bovine and human are in any way related. In the acute anemias, and in hemorrhage, we have in transfusion a very important thing. Dr. Chamberlain has mentioned transfusion in connection with the preparation of patients for severe operations when the hemoglobin is down. I have performed twenty transfusions and more than half of them were preliminary to other operations. If one can raise the hemoglobin 20% the patient's resistance is greatly improved. I had a gastric ulcer hemorrhage which had reduced the patient to less than 20% and the hemorrhage continued rapidly. Transfusion was done and the hemorrhage stopped. One month later a gastric operation was done, and the hemoglobin by that time was over 50%. I think Dr. Chamberlain's case, in which the hemoglobin was down to 10%, was most remarkable.

EPIDEMIC POLIOMYELITIS.*

By PHILIP KING BROWN, M. D., San Francisco.

Historically there was no special importance attached to this disease until its significance as a contageous epidemic disorder was emphasized in recent years. That it has existed endemically but infrequently in all parts of our land was apparent, but that it should become an almost national problem was due solely to the appreciation of its epidemic character. In this role it comes close home to us and especially to you residents of this valley, since the first epidemic of the disease in this state and the third recorded in America occurred in June, 1898, at La Grande, not more than 20 miles distant. To Newmark's service in the San Francisco Polyclinic two of the affected children were brought and from the history obtained it seemed that other similar cases had occurred. As there were on record at that time only 13 definite epidemics of the disease, much interest attached to these few cases, and I went to La Grande to see them. There, in the middle of a hot summer, is an isolated, sun sterilized village of 49 inhabitants four, or one-twelfth of the total number of persons, and one-third of all the children had come down with the disease. One had died. I examined the three survivors—two of them for the second time, and was able to get sufficient history of the fourth case to confirm the diagnosis of poliomyelitis. Since that time there have been epidemics of the disease in this state reported from San Francisco in 1903 by Dr. Alice Wood; in Watsonville and the neighborhood in 1907, reported by me; in Redding and Red Bluff in 1909, also reported by me. In San Francisco in 1910, reported by Dr. C. E. Fleischner. In Palo Alto in 1911, reported by Dr. R. L. Wilbur and in the most unsanitary suburb of Los Angeles in 1912, by Dr. T. J. Orbison. The striking characteristics of these epidemics have been their generally rural or suburban character where the sanitary conditions were poor or where distinctly unsanitary conditions were the rule.

In collecting data regarding the disease several unrecorded epidemics in other states were uncovered, notably one in Idaho in 1902 in which some 25 children were attacked.

A brief résumé of the epidemics is given to show the increasing recognition of the disease, or its spread, or both:

Epidemics.

1st record—Colmer. Am. Jr. Med. Sci. July, 1843, 8 or 10 cases in 1841—W. Feliciana, La.

2nd record—Bergenholtz. Mentioned by Marie. 13 cases, 1881—Umea.

3rd record—Cordier, Lyon Medical, 1888. 13 cases, 1885—Lyon, France.

Then began the more general recognition of the epidemic character of the disease in Norway, Sweden, Germany, Italy, S. Australia, New England and finally its occurrence in hundreds of cases in single localities, chiefly in and around Boston, New York, and in Nebraska, and Minnesota, Norway and Oceania.

Epidemics recorded in 5-year periods from 1880:

	Epidemics.	Cases	Average-number cases		by decades		
1880-84	2	23	11.5	1880-89	9	116	13
1885-89	7	93	13				
1890-94	4	151	38	1890-99	27	496	18
1895-99	23	345	15				
1900-04	9	349	39	1900-09	34	8403	280
1905-09	25	8,054	322				

Over 5000 of the cases reported in the last five year period occurred in the United States, and in the following year, 1910, it is estimated that the total reached fully 3000.

The recent Los Angeles epidemic briefly reported by Orbison (*Cal. State Jr.*, Oct., 1912), is a splendid example of proper handling of what might have been a most alarming spread of the disease. In the middle of June a few cases were reported in an outlying and neglected district of the city along both sides of the river bed "where many of the city streets had never been watered and where the hygienic conditions of the inhabitants were bad."

As soon as the epidemic nature of the trouble was fully appreciated the mayor called a meeting of physicians, clergymen and laymen; hospital and publicity committees were named, a suitably located building was promptly put in order and equipped for an isolation hospital, the city council providing funds and moral support, enabling the committee to provide also strict quarantine. The district was cleaned up—all streets were oiled or watered and the result was that the number of new cases fell rapidly so that whereas 41 were reported the last week in July only two were reported the last week in August.

There will always be doubters who tell you that this sort of handling of epidemics is unnecessary and costly, it hurts trade, the publicity it makes is harmful to municipal growth. These are the selfish and superficial critics who fail to hear the question asked, how does the community meet its dangers; does it hide them and seek to prevent any knowledge of them from going abroad, or has it met them skilfully and promptly and whole-heartedly? The people are suspicious of concealment and they can be educated easily to appreciate modern measures of prevention of disease. Even Senator Works, in a recent address in San Francisco, after getting his audience laughing over extracts from a State Health Bulletin recommending protection of latreens from flies because typhoid was at times a fly-borne disease (the very idea!), pasteurizing milk to prevent infantile digestive disorders (he never was raised on anything but good condensed milk, or cow's milk from a good old cow), was obliged to explain when they roared after he read in the next paragraph,—that mosquitoes transmitted malaria and yellow fever,—that this really was true, he knew it from personal investigation in Washington. Thank God for that much light in our national representative; and it does show the possibilities of education.

Causes. So far all that we know is based on a study of seasonal relation of epidemics in which

* Read before the San Joaquin Valley Medical Society, October 6, 1912.

it is shown that the disease is commonest in summer, but it may occur in any season. This is especially significant when it was shown that the channel of infection is through the tonsil or nasopharyngeal mucous membranes and that a communicable virus has been recovered as late as six months after recovery from the acute symptoms of the disease. The virus passes readily through a Berkefeld filter and is unchanged by drying, freezing or suspension in glycerine. It has never been cultivated and it is ultra microscopic. In this respect it belongs in the class with the virus of rabies, dengue, scarlet fever, mumps and measles.

Contageousness. Zappert is almost alone amongst recent writers in opposing the idea of contageousness of the disease. Marie of the earlier French writers, including Charcot, laid great stress on the hereditary nature of the disease, pointing to the known occurrence of the disease in several members of one family as evidence of hereditary influences. Emerson shows that 166 children were exposed in the Colrain epidemic in Deerfield Valley, in families in which 67 cases occurred and only four of the 166 contracted the disease. There were 16 cases where children slept with a brother or sister having the disease and 21 more where personal contact was intimate and only two of these got the disease. Morse reports that no case ever developed in the wards of the Children's Hospital in Boston although patients with the disease have been treated there for years, nor did the introduction of a case (presumably acute) into St. Mary's Infant Asylum in 1909 result in any contagion.

On the other hand Wickman's report of the 1905 epidemic in Norway shows contact as the likely factor and traces the spread from village to village by contacts. Harbitz of Christiania concurs in this opinion and reports cases among nurses caring for acute cases. Flexner calls attention to carriers, in his suggestion that the big epidemics in this country occurred first in the seaports and then in the middle west, especially the parts settled by Scandinavians, among whom most of the European epidemics have occurred.

The Nebraska epidemic in 1910 (Shidler, *Jr. A. M. A.*, Jan. 22, 1910; McClanahan, *Jr. A. M. A.*, Oct. 1, 1910; Anderson, *Jr. A. M. A.*) shows the rural occurrence but no conclusive data on exposure to a common source of the virus or personal contact as the underlying factor in the spread of the disease. Shidler reports four and six cases in two families of six children, four in a family of five, and four in another of four children, but the vast majority of all cases occurred singly and over widely scattered territory.

Like all epidemic diseases the varying intensity in virulence plays an important role. By passing the virus through 20 monkeys Flexner has secured a potency which practically kills all monkeys inoculated. In studies of experimental transmissibility many domestic animals, chickens and pigeons, have resisted infection, but in the Vermont epidemic (Claverly) spinal cord changes were found in the chickens (Dana) and dogs, horses and pigs were attacked. Chickens were attacked in the Michigan epidemic of 1907 and Westphalia epidemic in 1908. The interesting fact has been established that the disease cannot be transmitted in monkeys through preparations of urine or bile of the affected animals. However, it may be transmitted by emulsions from nasal mucous membranes and intestinal discharges of monkeys intradurally inoculated, hence the nasal and mouth secretions and the feces are dangerous.

Theobald Smith has recently shown that certain of the paralyses of animals were probably unrelated to epidemic poliomyelitis, because emulsions of the spinal cord of recently paralyzed animals inoculated into monkeys failed to reproduce the disease. Paralysis in animals, however, is known to occur from a number of causes and it would seem that safe conclusions as to the disease being primarily one in animals cannot be drawn without repeated inoculation experiments with animals paralyzed during epidemics of the disease among human beings. In the meantime the Massachusetts State Board of Health (1911) reports paralysis among pigs preceding the epidemic at Woburn among human beings; symptoms in cows preceded it in Newton and in a cat in Lowell.

The recent studies of Richardson, Sheppard, Brues and Rosenau, all of Massachusetts, point strongly to the relation of the common biting horse fly (stomoxys calcitrans) to the disease. Richardson in 1911 called attention to the fact that this fly was the only insect constantly present in the majority of houses where the disease had occurred. Brues and Sheppard carefully studied the conditions surrounding 88 cases of the disease in seventeen towns in Massachusetts. They concluded that "fly-time" marked the advent and spread of the disease which suggested the innocence of such insects as fleas, etc., which are less periodic in their appearance. Furthermore in towns where the disease occurred, unsanitary conditions, particularly those inviting fly breeding, were constantly present and the percentage of domestic animals, cows, pigs, horses, etc., averaged 5 to 20 times higher per human inhabitant than in towns where the disease had not occurred. It is interesting in this connection to recall the fact that in Norway and Sweden where so many of the extensive epidemics have occurred, the family stable and cow barn is an integral part of the house and conditions make for more than usually close contact of human beings and animals.

Finally, Rosenau showed that well monkeys put in cages with horse flies which had been allowed to bite other monkeys with the disease contracted a condition similar to the affected monkeys.

Our own Board of Health are preparing to repeat these experiments. In the meantime it is reasonably certain that the disease is also transmitted directly by acute cases and by carriers.

Incubation. The period has been variously estimated at from 24 hours to several weeks. It is probably very short, the variation being due to the length of time that the virus remains latent in the nasopharyngeal mucous membranes.

Immunity. Animals recovering from the disease produced by inoculation have shown a definite re-

sistance to re-inoculation (Flexner) but Stephens (*Intercolonial Med. Jr.,* Australia, 1908), and Eschner (*Med. Record,* Sept., 1910), report possible recurrences of the disease in the same patient.

No important evidences of antigen or antibodies have as yet been shown in the spinal fluid or serum.

Symptoms. When it is remembered that any part of the nervous system, brain, spinal cord, or nerves may be the seat of the trouble the variation of clinical type is better understood. Wickman divides these clinical types into eight forms, according to the location of the trouble in the nervous system. Of course combinations of types are common.

1. Spinal poliomyelitic.
2. Ascending form (less often descending) Landry's paralysis.
3. Bulbar poutine form.
4. Cerebral or encephalitic form.
5. Ataxic.
6. Polyneuritic.
7. Meningitic.
8. Abortive, in which no paralysis occurs but rather symptoms of meningeal, gastro-intestinal or general infection, hyperesthesia and pain.

These cases must all escape recognition except in epidemics, where according to Wickman they number from 15% to 50%. Frost in the Massachusetts and Iowa epidemics thought them 25% to 50% of the total cases. Anderson, 40% in the Nebraska epidemic, while Müller records an epidemic in Nauru, Oceania, of 700 cases where only 50 showed paralysis after three months.

As paralysis is not necessarily a symptom of the disease and may be so fleeting when present as to be of small consequence, we must first consider the prodromal symptoms and those present in these abortive cases. Hyperesthesia, irritability and sweating have marked the onset of most cases, fever being undoubtedly present at some time during the attack, however brief. It may reach 104° very soon after onset. There is often headache, joint pain, photophobia, constipation or diarrhea, retention or incontinence of urine, vertigo, choreiform movements, twitchings, convulsions, tremor and even coma. Skin eruptions are common in some epidemics and present a varying character. Lovett, Meyer and Strumpell report acute poliomyelitis in association with acute exanthemata, the latter reporting encephalitic form especially after measles. I myself have seen one possible similar case.

In the more serious cases paralysis intervenes and may occur in any part of the body. In these cases particularly the reflexes are important.

In early stages (irritative) the knee and ankle reflexes may be exaggerated but rapidly disappear, not necessarily at the same time. One leg, for example, may be spastic with exaggerated reflexes and the other flaccid with no knee reflex.

In pyramidal involvement a Babinski may occur and even ankle clonus.

Koenig's sign is of doubtful value, being often a varying condition in the rapidly changing state of the central lesions. The neck rigidity may be marked or absolutely wanting, the superficial reflexes present or absent or unequally affected in the same case.

Blood shows a leukocytosis as a rule and this may reach 34,000 (Morse).

Spinal fluid may be slightly turbid, but is clear as a rule. There are increased numbers of cells, chiefly lymphocytes in the later stage where the differential count shows a picture similar to tubercular or syphilitic meningitis. In the early stages the count may show a predominance of polynuclear forms which is exceedingly misleading.

Treatment; prophylaxis. It has been shown that the virus enters the body commonly through the air passages and is readily destroyed by such solutions as may be used harmlessly in these passages. Flexner in a verbal communication to the Association of American Physicians in 1911 recommends the use of mild alkaline sprays and menthol. The now well known fact that hexamethylenamine administered by mouth or in solution by rectum results in the appearance of formalin in the secretions and specially in the spinal fluid in a few minutes, offers the best reason for prompt administration of sufficient doses of this drug in suspected cases and as a prophylactic in exposed cases. Apart from a continuance of these remedies once the disease has established itself, the treatment in an acute stage is symptomatic. Remembering the skin eruptions and the changes noted in the liver, kidneys and spleen, attention must be paid to elimination and the state of the gastro-intestinal tract. I cannot believe Morse is right in the statement that after the paralysis hexamethylenamine does no good, "because the harm has then already been done." The best authorities, Wollstein, Flexner, Gay, Lucas and others have failed to find evidence of antigen in the spinal fluid of monkeys or human beings in various stages of the disease, or of antibodies in the blood serum of monkeys in acute stages of the disease, it seems reasonable to suppose that urotropin cannot interfere with nature's curative process and may limit the infection and its spread. If administered under supervision it can do no harm. Williams is authority for the statement that it "completely failed to arrest the inflammation in cord and meninges, although thoroughly tested in the Washington, D. C., epidemic this year" (1910). He fails to define "thoroughly," however, and the progress of symptoms from the cord involvement is dependent largely on local hyperemia and inflammatory edema so that his deductions seem badly taken. Until there is reason for not giving it, there seems no reason for its discontinuance.

Williams cites a case of the ascending form in which progress ceased after lumbar puncture and 1/3-1/4 gr. bichloride of mercury administered by hypodermic, five doses in three days. There are no reports of the benefits of injections of arsenical derivations, but in Elrich's summary of the benefits of salvarsan he shows its possible benefits in various acute infections, including malaria and smallpox.

In regard to the possibilities of an eventual serum treatment Flexner says, "it cannot be predicted how soon or whether ever at all such a form of specific treatment will be applicable."

The use of electricity and strychnia in the acute stage is obviously bad. Warm baths, splints for resting painful joints, protection from pressure of bed clothing for hyperesthesia are among the rational indications. To the orthopedist finally will go the majority of cases for resulting paralysis and the supervision of these cannot begin too soon.

Prognosis. Death occurs in 5% to 10% of severe cases—probably less than 5% of all abortive cases are recognized. Paralysis occurs in at least 50% to 90% of all reported cases and here, too, it may be that the smaller percentage was in epidemics where abortive cases were so frequently overlooked.

Paralysis, however bad at the beginning, may clear up entirely. Improvement generally takes place for six months, but no change for the better can be looked for after a year. Slightly paralyzed cases may not improve at all.

Resumé. What we know as acute anterior poliomyelitis is an acute infectious disease of unknown origin, occurring of late years in epidemics, small as compared to typhoid, diphtheria and scarlet fever epidemics but of about equal mortality. Like scarlet fever its virulence varies and while it is endemic in this state it rarely shows a strikingly virulent contageous tendency.

It is marked in abortive type by symptoms resembling nasal and tonsilar infection, with muscle, skin and joint pain, by gastro-intestinal symptoms, and finally in paralytic cases by flaccid paralysis of varying muscles in any part of the body.

Its recognition in the prodromal stage in the abortive type is almost impossible except in epidemics.

There is no specific treatment.

THE DIAGNOSIS OF TUBERCULOSIS OF THE SKIN.*

By D. FRIEDLANDER, M. D., San Francisco.

In the diagnosis of tuberculosis of the skin, we are confronted with a difficulty that we do not have to contend with in the gross pathological conditions of the same process in other organs of the body, inasmuch as we have, in tuberculosis of the skin, a variety of lesions which differ widely clinically, depending on the duration, intensity and evolution of the process, as well as the results of treatment. Not only in the clinical appearance does this wide variation occur, but also in the histological picture do we find the greatest latitude. On one side we will find cases in which the cutis and subcuticular tissue are thickly beset with typical tubercles, surrounded by inflammatory infiltration, with not infrequent tubercle bacilli; while, in other cases, we can only find an isolated tubercle, surrounded by fibrous tissue, and the most energetic search will not enable us to find a single bacillus. Since histopathological sections, showing the typical structure of the tubercle, are not a definite indication of tuberculosis, as similar infiltrations, showing giant cells, are found in other pathological entities, it has often been impossible to make a definite diagnosis from a biopsy, unless the causative agent, that is, the tubercle bacillus, can be found.

Were every case, clinically and histopathologically, a typical one, there would be no difficulty in making a definite diagnosis, but, unfortunately, the picture varies considerably both in the microscope and in gross appearance, and it is in the border line cases that we must exercise every possible endeavor to classify the lesion.

Were it possible, in every case, to find the tubercle bacillus, the diagnosis would be easy, but, unfortunately, it is often impossible to demonstrate the organism, and when found, to state the fact mildly, the number is exceedingly few. In fact, owing to the great difficulties presented in finding the bacillus, which was probably due to the insufficiency of our methods of investigation, it was seriously questioned whether or not certain polymorphous forms of atypical skin lesions, in reality tubercular in origin, were due to the tubercle bacillus, per se, or due to toxins, originating in a tuberculous process elsewhere in the body, and circulating in the blood; and, on this basis, these lesions were designated tuberculides or toxi-tuberculides.

The paucity of tubercle bacilli in skin lesions is probably due to the comparatively small amount of vascularization of the skin and the large amount of connective tissue present, which furnishes a much poorer medium for growth than the parenchyma of the lungs and other highly vascularized organs. This can be well demonstrated by the increased rapidity of progress that takes place when a comparatively indolent form of lupus vulgaris passes over from the skin to the mucous membrane.

However, in consequence of our knowledge of newer methods and better technic in the search for tubercle bacilli, we find that many clinical entities, some formerly classed as tuberculides, and some, where even the designation of tuberculide was disputed, are definitely due to the tubercle bacillus, and we can demonstrate the organism therein.

The methods employed in the diagnosis of tuberculosis of the skin may be classified as follows:

1. Clinical.
2. Animal inoculation.
3. Tuberculin test.
4. Histopathological.
5. Tinctorial.

The clinical appearances of the various tuberculous lesions can hardly be entered upon in a paper of this character; they differ, in their various manifestations exceedingly, but all have the characteristics of torpidity, infiltration, ulceration, and are not infrequently accompanied by other tuberculous lesions.

Animal inoculation, when positive, is practically certain, but, owing to the sparcity of the organism, or the lack of vitality thereof, or some unknown reason, it is not easy to procure positive results, except in the most pronounced cases, which can usually be recognized clinically. Furthermore, the

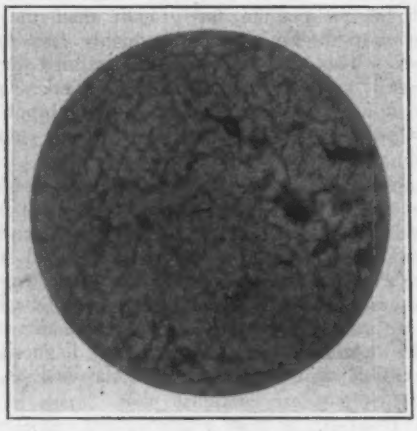
* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

method is inconvenient and one is compelled to wait some time for a report.

The tuberculin test, used in its various forms or methods, is frequently of service, but, in the great majority of cases the local reaction is lacking and a general reaction possesses little or no significance in the diagnosis of the lesion.

The histopathological examination, in the characteristic cases, presents the usual picture of tuberculosis elsewhere, characterized by the presence of an inflammatory infiltrate with central caseation and giant cells, but, without the tubercle bacilli, not only is this not characteristic of tuberculosis alone, but frequently, in the atypical forms, is absent or indefinite.

Finally, we have the tinctorial method, and the finding of acid-fast bacilli, staining with the Ziehl stain, showing a predilection for the giant cells, are, barring lepra, smegma and some other acid-fast bacilli, practically positive. Owing to the infrequence of the bacilli this has been extremely difficult, but within the last few years, two points have arisen which have considerably lightened the labor of finding the causative organism; they are the use of antiformin, and the discovery by Much, of Hamburg, of a Gram positive organism, which is resistant to antiformin, as only acid-fast organisms are, that occurs only in tuberculous lesions and discharges, occurring in conjunction with, but also without, the Ziehl staining tubercle bacillus.



The tissue to be examined is macerated with antiformin 10-15% and placed in an incubator for 8-24 hours, when the tissue will be digested, and then centrifugalized for 1-2 hours after adding alcohol 95% to the amount of 1/5 of the solution for the purpose of lowering the specific gravity of the solution and causing a better precipitate, and this also causes the material to adhere firmly to the slides. This procedure is carried out with all possible precautions to prevent the introduction of any extraneous organism.

The smear or section to be examined is then stained according to Much's modification of Gram's stain (see Much, Unna's Studium Bd., xxi, p. 95. (vol. ii, Unna's Festschrift)) or, better still, the modification of Weiss (Mitteilungen aus den Hamburgischen Staatskrankenanstalten Bd., xi, heft 9), which stains, simultaneously, the Ziehl staining form of the bacillus and the Gram positive form. The method of Weiss is as follows:

1. Sol. A. Saturated alcoholic solution of methyl violet B. N 10cc.
   Watery solution of carbolic acid 100 cc.
   Sol. B. Carbo-fuschsin.
   Solutions A and B to be combined, as used, in the proportion of 25% of A to 75% of B. This mixture is to be applied to the slide for 5 minutes over the flame, or 24-48 hours at room temperature.
2. Lugol's solution, 5-20 minutes cold, or heated until it steams.
3. Nitric acid 5% 1 minute.
4. Hydrochloric acid 3% 10 seconds.
5. Aceton alcohol until the color ceases to come off the slide.
6. Dry with filter paper.
7. Bismarck brown 10% 1 minute.
8. Wash and dry.

Cold staining is preferable to heating, and all stains should be repeatedly filtered before using, and the slides should be stained in the vertical position to avoid precipitate.

The Ziehl staining tubercle bacilli appear as with the ordinary Ziehl stain, while the Gram positive organisms of Much appear as a long, fine bacillus, the capsule of which is stained faintly red, containing 4-7 round, sharply defined granules, of varying size and dark blue color.

The Gram positive form is found in greater abundance than the Ziehl staining form (Hatano, Berlin Klin. Wochenschr., 1909, p. 1694), and is demonstrable in all tuberculous lesions of the skin, as well as the so-called tuberculides (see author British Journal of Dermat., Jan., 1912). Often, when the lesions show no Ziehl staining or Gram positive bacilli in section, they can be found in the antiformin treated smears, and the process is not too long or too difficult to be carried out in the average office. The question as to whether the Gram positive organism is a degenerated or a retrograde form of the Ziehl staining bacillus, of which it possesses all the morphological characteristics, is an unimportant one as long as we can confine its existence to tuberculous lesions, and this fact, together with the facts that it can be demonstrated in pure T. B. cultures, and in the peritoneal cavity of guinea pigs inoculated with pure cultures of T. B., practically demonstrates it to be what Much claims for it, a granular, Gram positive form of the tubercle bacillus, that does not take the Ziehl stain, as shown by the use of the Weiss method, which stains both forms simultaneously.

Thus we have the antiformin method, which dissolves the tissue, destroying all organisms that are not acid-fast, and enables us to find, more readily, the causative bacillus in tuberculous lesions, and the method of Much, which allows us to demonstrate a variety or condition of the tubercle bacillus, heretofore impossible.

In conclusion, it might be said that in the

diagnosis of tuberculosis of the skin, we must consider all factors, history, clinical appearance, animal inoculation, histopathological conditions and the tuberculin test, but, undoubtedly, the antiformin treatment of tissue, and the advent of the organism of Much have done more to clear up the diagnosis of obscure tuberculous skin conditions than all other methods combined.

SOCIETY REPORTS

THE CALIFORNIA ACADEMY OF MEDICINE.

The California Academy of Medicine held its regular meeting on Monday, November 25th.

The following scientific program was given:

1. Experimental and Clinical Notes on the Etiology of Diabetes Insipidus. Dr. H. A. Naffziger. Discussed by Drs. W. F. Schaller, W. W. Kerr, D. W. Montgomery, H. R. Oliver, A. J. Lartigau and H. A. Naffziger.

2. Enteroclysis in the Treatment of Weak Hearts. Dr. W. W. Kerr. Discussed by Drs. G. E. Ebright, J. B. Frankenheimer and W. W. Kerr.

3. The Course the Virus of Herpes Zoster takes to reach the Nerve Ganglion. Dr. D. W. Montgomery. Discussed by Drs. H. W. Allen, W. W. Kerr, W. F. Schaller, A. J. Lartigau, T. C. McCleave, L. S. Schmitt and D. W. Montgomery.

Refreshments were served at the close of the meeting.

CALIFORNIA NORTHERN DISTRICT MEDICAL SOCIETY.

The twenty-second annual meeting was held at Elks' Hall, Chico, November 19th, 1912.

The program was as follows:

Morning session, 10 o'clock:

Address of Welcome, Wm. Robbie, Mayor of Chico.

President's Annual Address, Dr. R. A. Peers, Colfax.

"Poliomyelitis from a Public Health Standpoint," Dr. Jas. H. Parkinson, Sacramento.

"The Health Insurance Acts in England," Dr. W. F. Snow, Sacramento.

"Vaccine and Serum Therapy in General Practice," Dr. D. H. Moulton, Chico.

Afternoon session, 2 o'clock:

"The Symptoms, Care and Treatment of Acute and Sub-Acute Alcoholism," Dr. R. E. Bering, San Francisco.

"The Treatment of Early Myocarditis," Dr. Geo. E. Ebright, San Francisco.

New officers elected: President, Dr. Dan Moulton, Chico; First Vice-President, Dr. G. H. Fay, East Auburn; Second Vice-President, Dr. Peery, Yuba City; Secretary, Dr. F. F. Gundrum, Sacramento; Treasurer, Dr. O. Stansbury, Chico.

There were about fifty physicians in attendance and the meeting was an unusually good one.

COOPER CLINICAL SOCIETY.

The Cooper Clinical Society held a meeting on the evening of December 3rd, at the Medical Department of Stanford University.

The following scientific program was given:

1. Milk Supply of San Francisco. Dr. W. H. Kellogg. Discussed by Drs. Langley Porter, Adelaide Brown and W. H. Kellogg.

2. Contribution of Certified Milk to Infant Feeding. (Illustrated by lantern slides showing the production of clean and of unclean milk.) Dr. Adelaide Brown. Discussed by Drs. A. B. Spalding, W. H. Kellogg, H. R. Oliver, Langley Porter and Adelaide Brown.

Refreshments were served at the close of the meeting.

GLENN COUNTY MEDICAL SOCIETY.

On November 21, a first meeting was called by the physicians of Glenn County for the purpose of organizing a county medical society. Dr. J. A. Randolph was chosen temporary chairman and Dr. F. M. Lawson temporary secretary. On November 27, another meeting was held at which time the society organized and adopted the constitution and by-laws recommended by the A. M. A. for county societies, and applied for affiliation with the State Society.

The Journal takes the greatest pleasure in extending to this youngest of our societies, sincere congratulations and the best of good wishes for a long and useful life. It starts out new with the New Year and may all its acts be worthy and profitable.

LONG BEACH PHYSICIANS' CLUB.

At the meeting of the club held in December the wives of the physician members were invited and the subject of the evening was an address by Dr. Stanley P. Black, of Pasadena, who discussed preventable diseases and public health matters generally.

MONTEREY COUNTY.

The officers elected to serve for 1913 by the Monterey County Medical Society are as follows: President, Dr. S. B. Gordon; Vice-President, Dr. A. M. Ritchie; Secretary, Dr. H. T. Crabtree; Treasurer, Dr. John Parker.

ORANGE COUNTY.

At the meeting for November, held Nov. 12, a paper on education in the hygiene of sex was read by Mr. R. J. Hamilton, secretary of the Orange County Y. M. C. A. The paper was discussed at length and a committee consisting of Dr. Ida Parker, Dr. John Wehrly and Dr. George Bryan was appointed to work with a committee of the Y. M. C. A. with the object of promoting the campaign for education on sex hygiene and instruction of children in a proper way on matters pertaining to sex.

SAN BERNARDINO COUNTY.

The November meeting was held on the 19th, at Redlands, and the program was made up of short papers on various phases of "Therapeutics," Drs. Tyler, Shreck, Folkins and Sanborn contributing. It was arranged that at the December meeting Mr. H. T. Morrow, the attorney for the State Society in southern California, should deliver a talk.

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of November, 1912, the following meetings were held by the San Francisco County Medical Society:

Section on Medicine, November 5, 1912.

1. Presentation of Cases. Dr. Milton B. Lennon.
   A. Multiple Neurofibromata (von Recklinghausen's Disease).
   B. Syringomyelia.

Discussed by Drs. H. C. McClenahan, L. Eloesser and M. B. Lennon.

2. Congenital Heart Lesion. (With demonstration of case). (To be published in the Journal, A. M. A.). Dr. George E. Ebright.

3. Interauricular or Interventricular Deficiency of Septum? A Question of Diagnosis. Dr. W. W. Kerr. (To be published in the Journal, A. M. A.).

Regular Meeting, November 12, 1912.

1. Rational Psychotherapy. Dr. H. C. McClenahan. (To be published in California State Journal).

2. Psychotherapy from the Standpoint of the

General Practitioner. Dr. W. C. Alvarez. (To be published in the Journal, A. M. A.).

3. Psychotherapy in Sexual Neurasthenia. Dr. Victor Vecki. (To be published in California State Journal). Discussed by Drs. Carl Renz, J. W. Shiels, H. C. McClenahan and W. C. Alvarez.

Section on Surgery, November 19, 1912.

1. Exhibition of Cases. Dr. Stanley Stillman.
   A. Adenosarcoma of Frontal Lobe.
   B. Recurrent Carcinoma of Lip.

Discussed by Drs. J. Rosenstirn, E. Rixford, H. Sherman, G. C. Macdonald, S. T. Pope, L. Eloesser, R. Russ and S. Stillman.

2. Report of a Case of Facial Paralysis. Dr. J. H. Barbat. Discussed by Drs. Cullen Welty, J. Rosenstirn, E. Rixford, S. Stillman and J. H. Barbat.

3. Case Reports. Dr. Emmet Rixford.
   A. Carcinoma of Colon.
   B. Perforation of Small Intestine.
   C. Congenital Dislocation of the Hip in Newborn Infants.

Discussed by Drs. S. J. Hunkin, H. Sherman and E. Rixford.

Section on Eye, Ear, Nose and Throat, November 26, 1912.

1. Preliminary Report of Three Cases of Labyrinthine Lues. (Demonstration of two cases). Dr. H. B. Graham. Discussed by Drs. Cullen Welty, G. P. Wintermute and H. B. Graham.

2. Report of Two Cases of Cerebellar Tumor. (Demonstration of one case.) Dr. M. B. Lennon. Discussed by Drs. W. F. Blake, C. R. Bricca, G. P. Wintermute, Cullen Welty, Kaspar Pischel, H. B. Graham. Henry Horn, H. C. Naffziger, W. F. Schaller and M. B. Lennon.

3. Report of Cases Showing Acute Sinus Infection of the Field of Vision. Dr. A. S. Green. Discussed by Drs. Henry Horn and A. S. Green.

SAN FRANCISCO COUNTY DIRECTORS.

The following were elected Directors at the annual election in December:

Gibbons, Morton R., Bine, Rene, Ophuls, Wm., Kerr, W. W., Jones, Philip Mills, Alderson, Harry E., Terry, Wallace I., Kugeler, H. B. A., Porter, Langley, Cooper, Chas. M., Carpenter, F. B., Shiels, J. Wilson, O'Neill, A. A., Ebright, Geo. E., Tait, Dudley, Frankenheimer, J. B., Spencer, John B., Hyman, Sol, Lennon, Milton B., Oliver, Harry R., Beasley, S. O.

SAN LUIS OBISPO COUNTY.

On December 7th the San Luis Obispo County Medical Society held its annual meeting and elected the following officers to serve for the present year: President, Dr. H. M. Cox; Vice-President, Dr. P. K. Jackson; Secretary, Dr. C. J. McGovern; Delegate to the State Society, Dr. H. M. Cox.

TULARE COUNTY.

The Tulare County Medical Society held its annual meeting at Lindsay on December 10th, at which time it was decided to hold all future meetings, unless otherwise voted, at Lindsay, as being the place most easily reached from all parts of the county. The following officers were elected for 1913: President, Dr. J. B. Rosson; Vice-President, Dr. C. M. White; Secretary, Dr. A. W. Preston.

YOLO COUNTY.

The Yolo County Medical Society held its annual meeting in the rooms of the Oaks Club on the evening of December 3rd. The officers for the coming year were elected as follows: President, Dr. H. D. Lawhead; vice-president, Dr. Chester Fairchild; secretary-treasurer, Dr. F. L. Newton. A supper was served after the meeting.

NEWS NOTES FROM NEWSPAPERS.

(Note:—This department was omitted in the last issue on account of lack of space and therefore some of these notes may seem to partake of the nature of "cold storage" material.)

Anthrax, one case of it, appeared in Lake county in October.

Sutter Creek is reported to have several cases of diphtheria.

Stockton has had a mild epidemic of trachoma in one of its schools.

Merritt Hospital, Oakland, is to build a new brick dormitory for its nurses.

Red Bluff had a fatal case of poliomyelitis in the latter part of November.

Poliomyelitis caused one death in Santa Clara late in the month of October.

Placer county has a new health officer in the person of Dr. J. S. Wheeler.

Napa county has reappointed Dr. R. F. Taylor as county physician for the coming year.

Dr. and Mrs. W. E. Alumbaugh celebrated their golden wedding at Napa on November 3rd.

The Sonoma county grand jury has condemned the buildings of the Sonoma county hospital.

Oxnard is to have a new hospital that will be in every way up-to-date and will cost about $60,000.

Red Cross stamps to the number of about a million were disposed of in this State during December.

Los Angeles public schools are to be thoroughly investigated in regard to their sanitary condition and requirements.

A navy medical reserve corps, similar to that of the army, has been suggested by the surgeon general of the navy.

Dr. A. H. Wright, sentenced to 10 years for abortion, has been allowed his liberty on $20,000 bail pending an appeal.

Monrovia has an energetic health officer, Dr. C. D. Gaylord, who refuses to resign or be put out for doing his duty.

A case of hydrophobia occurred in Colusa in December; but never mind; let us not annoy the poor dogs with muzzles!

Merced county society, through its president, has caused the arrest of a "Dr." Sampson for practicing medicine without a license.

Stockton's idea of having a free clinic for the destitute poor among its school children, seems to be working out very well.

The Incurables Home of the King's Daughters of Oakland was dedicated on November 24; it will accommodate some 50 patients.

Los Angeles has opened a school for mothers where women can be given full instruction as to the care and feeding of infants.

Health certificates as a pre-requisite to marriage, are being advocated in various parts of the state, but particularly in the southern part.

A malpractice suit for $25,113 against Dr. J. R. French, of Los Angeles, was dismissed on motion of the attorney for the State Society.

Long Beach draws the 1912 prize for "lions:" this particular "lion" is none other than Dr. H. S. Tanner of lasting and fasting fame.

Chenoweth, a notorious advertising quack, has escaped trial for obtaining money by false pretense through the death of the patient.

Vaccination in Oakland is to be enforced so far as all teachers and other employes are concerned and a rigid examination of all pupils will be made.

Dr. N. E. Richardson, formerly of Salinas, has purchased a large ranch in Sutter county and is to become a farmer in real earnest—on a large scale.

The King county superintendent of schools, Mrs. N. E. Davidson, is strongly urging upon the county the systematic and careful examination of all school children.

At the Kenilworth Sanitarium, Illinois, Dr. H.

W. Powers has resigned as superintendent and Dr. Sherman Brown has been appointed to take his place.

Dr. Henry S. Orme, one of the oldest members of the State Society, died in Los Angeles on November 30. An obituary notice will appear in a later issue.

The State Commission on Tuberculosis held a meeting in San Francisco on the 14th of December, preparatory to making its report to the next legislature.

Dr. P. G. Cotter, of Los Angeles, was very seriously injured by his automobile, which was struck by a car and turned over upon him, crushing his ribs.

San Francisco is too poor to support a proper board of health and so it abandoned the inspection of school children and a few other public health activities.

Dr. L. Lambert of Sacramento is declared by the federal authorities to be one of the boldest abortionists arrested in their recent raids, according to newspaper items.

Yuba county has made a change in the superintendent of its county hospital and Dr. Van Male no longer holds that position which has been taken by Dr. Everett Gray.

San Joaquin county has a new health officer in the person of Dr. H. C. Peterson, who has been appointed to take the place left vacant by Dr. R. B. Knight's resignation.

Bakersfield is bestirring itself in the health line and has just appointed an active secretary and inspector who promises to really do things in the way of cleaning up. Good work.

Orange county society has appointed a committee to work with a similar committee of the Y. M. C. A. for the purpose of planning a campaign of education in sex hygiene.

The California Hospital, Los Angeles, is to reconstruct all of its buildings, making them fireproof, as soon as the work can be done without interfering with the running of the hospital.

Fresno was visited by Dr. Hoisholt who delivered a lecture under the auspices of the University Club on the Relation of Insanity to Crime. Judge H. J. Austin participated in the discussion.

Open air schools, being the common sense thing, especially in California, seem to be but slowly gaining popular favor; it is astonishing how slowly people will take to a new idea, particularly if it is a sensible one.

Typhoid fever has been practically driven out of the army through vaccination; only eleven cases have occurred in the past year. Most of the cases were among recruits who had not received the prophylactic treatment.

Newspaper science is wonderful! Referring to the recent surgical congress in New York, one of our papers says: "Sewing machines are used by some surgeons in uniting tissue in the same manner that clothes are sewed."

"Dr. Albert Abrams of San Francisco" says the Examiner "has succeeded in procuring the convention of the American Association of Spondylotherapy for 1915." Fine! That means that Dr. Abrams has procured himself for 1915.

The State blind institution is in for the investigation which occurs about so often; the job of running an institution for the blind is not at all a pleasant one and probably it will be found that the charges are without substantial foundation.

Redding has had a lot of trouble from smallpox and the friction caused the resignation of all the members of the board of health except Dr. Saylor. The measures proposed by the health board would "hurt business;" same old story!

The old melodramatic substitution of a living child for a dead one in order to preserve an heir for an estate has filled much space in California newspapers for some time past. It is reported that the investigation of the case has not been finished.

Psychopathic homes, hospitals or receiving stations will be asked for from the next legislature, one to be located in Los Angeles and one in San Francisco. Some day we may really see the State treat its insane citizens as sick persons and not as criminals.

Dr. E. O. Sawyer, county health officer of Los Angeles county was given a banquet—and a gold badge—by many physicians and friends, on November 22nd. Los Angeles is certainly to be commended for its high development of the banquet idea.

A very valuable little catalogue of medical books published by all publishers in this country, has recently been issued by the W. B. Saunders Co., Philadelphia, and they will gladly send a copy to anyone asking for it; it is worth asking for, if you ever read books.

San Jose is the seat of considerable trouble in regard to lodge practice; most of the physicians in the county society object to the work (very naturally!) and they are trying their best to get all the doctors in the community to be sensible and refuse to do the work.

Dr. O. D. Hamlin, who acquired a game knee while East last summer, has invented a new way of shooting ducks. He sits on a piano stool, in a blind, and thus orientates himself to correspond with the migratory duck with the least amount of effort and personal disturbance.

The tuberculosis commission, it is said, will recommend to the legislature that each county, or groups of counties, when more convenient, be compelled to maintain a tuberculosis sanitarium for the care and treatment of its tubercular citizens. How the counties will fight it!

Fresno is having a little difference of opinion between its city health officer and its county health officer as to whether or not there are a few cases of poliomyelitis in the county. Dr. Aiken, the county officer, seems to have the better of the argument; there are no cases in the city of Fresno.

Mr. H. T. Morrow, our attorney for southern California, has been delivering a number of public lectures on the "Fight Against Criminal Practices." It is to be hoped that he can arouse some little interest on the part of the laity, for unless the layman wants these laws enforced, they will be dead letters.

Abortionists are uneasy; the federal government gathered up quite a few of them recently; but probably just as samples, for there are lots that were not arrested. Among our distinguished colleagues gathered in the net were Drs. J. F. Wetzel and H. W. Rais of San Francisco and Dr. E. D. Curtis of Oakland.

"Dr." Goscinsky, a quack of Castroville, was convicted of practicing medicine illegally, but on motion was given a new trial because the complaint was defective; it did not state that he was practicing medicine without a license, but merely that he was practicing medicine! What has commonsense to do with a legal technicality?

Los Angeles has many very fine characteristics, not the least of which is its firm belief in the beneficial effect of banquets. On December 13th some 80 physicians of that community tendered a banquet to Dr. E. R. Smith upon the occasion of his retiring from active practice. Dr. Ellis was the chairman and Dr. Norman Bridge the toastmaster.

The Fresno "Mirror," referring to abortionists and their use of the advertising pages of newspapers, makes this ingenuous remark: "We suggest that the next legislature pass a law making it a felony for newspapers in this state to publish the advertisements of such doctors and drug concerns." Bless you, dear "Mirror," don't you know that such bills have been presented in nearly

every legislature for twenty years and have been defeated—by the newspapers? They want the dirty money.

BOOK REVIEWS

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. October, 1912. Published Bi-monthly by W. B. Saunders Company, Philadelphia and London.

Contents.

Remarks on Anesthesia Made at Clinic.
Nephrolothiasis.
Cholecystitis.
Gastroduodenal Ulcer—Gastro-enterostomy.
Appendiceal Abscess.
Colonic Adhesions Simulating Recurrent Appendicitis.
Exophthalmic Goitre.
Traumatic Lesion of Brain.
Trifacial Neuralgia.
Tumor of Spinal Cord.
Chronic Mastitis.
Recurrent Ovarian Cystosarcoma.
Retroversion of Uterus.
Rectocele and Perineal Laceration.
Ununited Fracture, Shaft of Right Humerus.
Osteitis Fibrosa Cystica of Right Humerus.
Ankylosis of Left Elbow.
Ankylosis of Right Hip-Joint.

A Student's Manual of Surgical Diagnosis. By George Emerson Brewer. Quarto. Cloth, pp. 40. D. Appleton & Co., New York and London, publishers. Price not stated.

There is a real want for a handy and practical compend of the methods of surgical diagnosis. This want Brewer's book does not fill, nor does it pretend to do so; its title is misleading, it is rather a student's guide for college courses in surgical differential diagnosis than a manual of diagnosis. It consists of a short exposition of the author's ideas on the teaching and practice of the differential diagnosis of surgical affections, illustrated by a number of case reports and discussions, and of 16 charts classifying surgical disorders. Four of these are general, classifying injuries, deformities, inflammation and new growths, respectively. The remaining twelve are regional and classify the surgical diseases according to localization. The book is evidently intended as a supplement and guide to Brewer's class-work at Columbia University. It should prove itself useful not only to his pupils, but to other students—and their teachers. L. E.

Obstetrics. A text-book for the use of students and practitioners. By J. Whitridge Williams, M. D., Professor of Obstetrics, Johns Hopkins University. Third edition; cloth; pp. 977, with 16 plates and 668 illustrations. New York and London: D. Appleton & Co. 1912. Price $6.00.

This excellent text-book on obstetrics appears in practically the same style and size as the previous editions. Changes have been made to include the more recent studies of early human ova, of the indications for pubiotomy and Caesarian section, of pernicious vomiting of pregnancy, of the frequency of contracted pelvis in Baltimore and on the treatment of labor complicated by contracted pelvis. The bibliography at the end of each chapter has been extended and brought up to date.

While the text ranks equally high with the best American works on obstetrics and is an ideal reference book for both students and practitioners, it falls short of meeting the needs of the under-graduate student by being too comprehensive. The book will be best appreciated by young graduates entering on a training for special work in obstetrics. The inspiration to get away from text-books and to dig in the library for original articles is met with in every chapter. The chapters on the toxemias of pregnancy are interesting and impressive and indicate a considerable amount of original work. However, it is in this section that in future editions one will probably note the most changes. The chapters dealing with the operative care of abnormal labor are full of good, sensible and sound advice for the general practitioner. The book is a credit not only to the author, to his clinic and to his assistants, but is a high tribute to the teacher of Williams—William H. Welch.

ALFRED BAKER SPALDING.

The Principles of Human Physiology. By Earnest Henry Starling, M. D. (London), F. R. C. P., F. R. S., Jodrell Professor of Physiology in University College, London. Octavo, 1423 pages, with 564 illustrations, some in color. Cloth, $5.00 net. Lea & Febiger, Philadelphia and New York, 1912.

This recent book by the Jodrell Professor of Physiology in the University College, London, is fully up to the high standard set by such books as those of the great English physiologists, Foster and Schaefer. When the thoroughly trained English scientist writes a text-book or a monograph, it is usually an admirable and comprehensive piece of work. The general attitude of Prof. Starling towards medicine makes his book unusually acceptable and valuable to the physician. This is indicated by the following statement in the preface: "The only foundation for rational therapeutics is the proper understanding of the working of the healthy body. Ignorance of physiology tends to make the medical man as credulous as his patients and almost as easily beguiled by the specious puffings of the advertising druggist."

The general excellence of this new physiology is so marked that it is with difficulty that one selects special subjects for comment. The chapters upon the properties of colloids and that upon ferments with the methods of studying them are particularly good. The value of Gaskell's Charts of the brains of various animals in making the organization of the nervous system clear is recognized and good use is made of them. A more complete discussion of the autonomic nervous system and of the work of McKenzie and Head upon skin areas of hypersensitivity in visceral disease would have been appreciated by the clinician. The addition of the chapter on immunity under the heading of "Chemical Mechanism of Defense" is indicative of the broad field covered by the modern physiologist. The relations of chemistry and physiology are well brought out, the illustrations unusually well chosen and far superior to those of the monumental work of Foster. It is a pleasure to see interpreted in a text-book of physiology many of the more recent and important contributions that have come to the subject through the clinician and medical laboratories. The discussion of the accommodation of the eye and of intraocular tension, the work of Cannon and Hertz on Roentgen Ray in the motor functions of the digestive tract, the work of Carlson on the causation of the heart-beat and the interpretation of the electro-cardiogram are all of especial interest. It seems certain that this book by Prof. Starling will prove to be as valuable to the English speaking medical world as his physiological work and laboratory have been to his own university.

R. L. W.

"The Mosquito—Its Relation to Disease and Its Extermination." By Alva H. Doty. Published by D. Appleton & Co., N. Y. and London. 1912.

The author of this small volume has attempted to present the more elementary facts concerning this insect in the simplest possible manner. In this

attempt to greatly simplify the subject and to group all mosquitoes into two classes, namely "Inland" and "Salt Water Swamp" mosquitoes, he has been forced to sacrifice some degree of accuracy. In most instances, for a popular volume of this character, the feature mentioned is not of serious practical importance, but on the other hand, when this brevity leads to the apparent but erroneous inference that various species of culex, stegomyia and anopheles (all grouped under his classification as "Inland" mosquitoes) have about the same breeding places, the purpose of the book, to encourage the extermination of the mosquito, is defeated. It is probable that this volume might be profitably utilized in the upper grades of our grammar schools and thus diffuse more knowledge of the importance of this insect among the pupils of such institutions. It is hardy conceivable, however, that any adult seriously interested in the subject would care for knowledge of as superficial a character as this book furnishes. The writing is too popular and elementary to be properly regarded as forming a part of medical literature.

Diseases of the Stomach, Intestines, and Pancreas. The New (2nd) Edition, Enlarged. By Robert Coleman Kemp, M. D., Professor of Gastro-intestinal Diseases, New York School of Clinical Medicine. Second edition, revised and enlarged. Octavo of 1021 pages, with 388 illustrations. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, $6.50 net; Half Morocco, $8.00 net.

This is a book of 1000 pages which contains an enormous amount of information on the subject. In fact, the main fault we have to find with the book is that too much has been included. Like so many other clinicians who write books of this type, Dr. Kemp should sit at the feet of Stevenson, who told a young writer that his success would be assured if he could only learn what to omit. So many authors lose sight of the fact that we are going to turn to them, as we do to a consultant—not to learn what every one through the ages has used for a disease, but what this particular master whom we know and respect has honestly found to be of service. We wish that medical authors would briefly outline their usual treatment, if possible telling frankly what they think of its efficacy, and then refer us to a separate chapter—a sort of "junk-room" where we could find enumerated all those measures which, having once been rushed into print, are handed along from book to book.

On page 397, under the head of "Treatment of Acquired Stenosis of the Pylorus," we find mentioned in the following order: Vibratory massage, electricity, olive oil, Rose's plaster belt (to be worn for five weeks and then replaced, the patient apparently to give up the custom of bathing in the meantime), diet (sanatogen! tropon! and comatose!), lying on the right side, lavage, alkalies, belladonna, thiosinamin, and, finally tucked away at the foot of the page—"the best physician for these cases is the surgeon."

The article on gastric ulcer is on page 268 where pyloric stenosis is barely mentioned amongst the indications for operative treatment, and then only after thirteen pages of medical suggestions. The article on duodenal ulcer is found 420 pages farther on, and here at last we find that "all cases of organic stricture are surgical and gastroenterostomy is indicated." In a book for the general practitioner such points should be salient and not hidden away in a mass of therapeutic rubbish. A great deal of space could have been saved by combining the three articles in one. There the author's favorite treatment could be outlined as follows: "The treatment of organic stricture of the pylorus is surgical." Note—if the patient refuses operation, either withdraw from the case or turn to chapter—for remedies with which to amuse him till he either starves to death or dismisses you.

A great deal of repetition in the matter of treatment could be avoided by having one good chapter on dietetics, another on overnutrition and the handling of so-called nervous disorders of the stomach and intestine, another on the care of ulcer, stomach, duodenal and pyloric; and another, as suggested, for electricity, vibrations, hydrotherapy, phototherapy, mechanotherapy, etc. Dr. Kemp has carefully collected them all. The phrase "Sanatogen, preferably flavored, tropon and somatose" has apparently been put in all over the book with a rubber stamp. The author's faith in Sanatogen is so great that on page 165, we read that milk must be peptonized for nutrient enemas but Sanatogen, which he doesn't seem to know is really dried cottage cheese, is apparently so nutritious that it can be digested without such preliminaries!

Apparently Dr. Kemp's faith in nutrient enemata has been untouched by the doubts of modern physiology. Those who know that proteid is broken into its amino-acids only after partial splitting by pepsin, further cleavage by trypsin and ultimate resolution by erepsin and bacterial ferments; those who know that only amino-acids can go through the intestinal wall, and that the body cannot use some of them in the absence of others; those who know that outside of the cecum the colon absorbs very little and contains no ferments of its own, and those who weigh their patients regularly, will have very little hope of maintaining a nitrogenous balance with raw eggs, brandy, peptonized milk, sanatogen and peptonoids. While such enemas may keep the patient amused and at the same time give him a certain amount of water, salts and possibly sugar, in many cases the physician should recognize starvation as such.

The article on physiology is inadequate and naturally its teachings do not permeate the book as a leaven and inspiration. In spite of the work of Wohlgemuth and a score of others on diastase, we read on page 487 that, "normally trypsin and diastase are absent in the stools."

The X-ray is not given the prominence it merits, now that it is revolutionizing our methods of diagnosis and giving us a new physiology. We were inclined to admit his contention that it is expensive and that it must be used by experts, until we found exploratory laparotomy advocated in lieu of accurate diagnosis, and that without mention of expense and danger.

When we see so little space given to the important things, we are jealous of the fifty-three pages on amebic dysentery, typhoid and Brills disease, and the thirty-five pages on intestinal parasites. As evidence of the poor apportionment of space in the book, we mention the fact that on page 443, that bug-a-boo of the stomach specialist, heart-burn, is given eight lines; and flatulence gets two and one-half pages.

The references are often very gossipy and many of them have no place in the book. For instance, on page 545, we read: "Kirchendall states to Morris that Stockton of Buffalo has for years asserted that the colon bacillus was the cause of many cases of choroiditis"! On page 459, he says that in arthritis deformans, he found hyperchlorhydria in one case, and Einhorn found achylia in one case. Under the circumstances, we think we would delay our report on the subject.

We believe that if the author in a subsequent edition will go through the book and blue pencil these things, re-arrange the material and accentuate his own observations, it will be a most valuable work.

W. C. A.

Muscle Spasm and Degeneration in Intra-Thoracic Inflammations and Light Touch Palpation. By Francis Marion Pottenger, M. D. C. V. Mosby, publisher, Metropolitan Bldg., St. Louis, Mo. Price, $2.00.

The monograph possessing this comprehensive title consists of about 100 pages of text and is, as

the author tells us in the introduction, with a few changes, a translation of his article which appeared in a recent number of the "Beitrage zur Klinik der Tuberculose."

It would be impossible in the space at the disposal of the reviewer to do justice to a work representing the results of the observations of such a painstaking investigator as Dr. Pottenger in the recognition of intrathoracic inflammations. Certainly when so little is written in English textbooks, and for that matter so little taught in American medical schools, regarding the physical signs of incipient lung tuberculosis, any aids of demonstrated value to the early recognition of this disease must be hailed with gratitude by the profession. A valuable sign has been brought forth by the author in the recognition of muscle spasm and subsequent muscle degeneration. This fact is attested by the experience of the reviewer and others in this country and in Europe, who are daily making use of the sign in diagnosing pulmonary inflammatory conditions. Muscular spasm is defined by the author as "the motor expression of the inflamed lung and we accept it as being produced by the inflammation in the lungs sending impulses through the sympathetic nerve fibers to the cord where they impart to the cells of the segment on the side of the involvement a certain amount of irritability, which shows itself peripherally, through the posterior horn, in changes in sensation as described by Head, and, through the anterior horn as muscular spasm and degeneration as here described." It must be admitted that this definition does not completely explain the phenomenon observed, for the spasm and degeneration does not follow any particular nerve distribution, but rather involves the musculature immediately overlying the diseased area. Where an entire muscle or several muscles are supplied by one nerve, only a part of the muscle or one of the group may be in spasm, while the rest show no change. The irritation seems rather to follow certain fibres of the nerve. Degeneration of muscle, atrophy of the overlying skin, and disappearance of the subcutaneous tissue has been noted by other authorities as evidence of early tuberculosis, but as Pottenger points out, these signs are evidence of chronicity rather than early lesion, as old quiescent foci with renewed activity are too frequently mistaken for incipient lesion.

The chapter on lagging as a sign of apical involvement is interesting in that the author attributes its cause more to the muscular spasm interfering with the free movement of the chest wall, rather than to the presence of infiltration interfering with elasticity of the lung. As lagging is frequently a very early sign when probably there is insufficient infiltration to perceptibly affect the elasticity of the lung, the author's explanation would seem to be the more plausible one. It is to be regretted that the chapter on this important sign is so brief, for it is a sign usually neglected in text books, and, when mentioned, usually confused with limited respiratory excursion—quite another sign.

Flattening of the chest wall on the affected side is also considered by the author to be due to the shortening which takes place in muscles which have undergone prolonged spasm and subsequent degeneration. Schematic drawings are presented to elaborate and elucidate his argument, and the fallacy of the older explanation of flattening, namely, the effect of atmospheric pressure forcing the bony thorax to contract in order to occupy the space formerly occupied by lung tissue which has undergone contraction or destruction, is most convincingly presented.

The last chapter, "Light Touch Palpation," is a discussion on the possibility and practicability of dilimiting normal organs and of diagnosticating diseased conditions in organs by very light palpation. The comparative value of this method with percussion and auscultatory percussion are reviewed. The reviewer believes that examiners generally will be loth to replace percussion by the method of palpation here advanced. Yet it must be admitted that the resistance felt by the percussing finger has gradually assumed relatively greater importance to the careful examiner than the note elicited by the percussion stroke. In other words, percussion has become a method of palpatory percussion. The value of any of the methods for eliciting physical signs is in direct proportion to the skill developed in the examiner by the constant use of his particular methods and certainly Pottenger is to be congratulated on the accuracy of his findings by the method of light touch palpation as he has developed it. While its value in examination of the abdomen has been generally recognized, he has demonstrated its usefulness even through the bony walls of the thorax.

The author has been frank throughout the book in admitting doubtful points. He admits that all his observations are not entirely new, but justly claims that no one heretofore has suggested their diagnostic importance. He has also pointed out that these motor, sensory and trophic changes in the soft parts, and also the trophic changes in the cartilage and bone, have had a great deal to do in changing the shape of the thorax, and particularly producing the phenomena which have been pointed out by Freund as being predisposing causes of tuberculosis.

The cuts illustrating the text are excellent reproductions from Spalteholz. The book is well printed, the arguments are clearly and logically set forth, and will be read with profit by all who wish to improve their methods of physical diagnosis.

G. H. E.

APPRECIATION OF THE TELEPHONE.

Tinkle, tinkle, little bell—
How I wish you safe in h--l!
Central on the job all night,
Doctor sleeping sound and tight.
"Baby's got the stomach ache,"
Mama shaking like a quake;
Papa running here and there,
Barks his shins upon a chair!
Doctor scooting through the air;
Lights go out; gas all gone;
Motor dead a mile from home;
Doctor cussing like a fiend
Baby, motor, gasoline!!
(He arrives.)
Baby sleeping in his bed;
Papa's arm round mama's head.
Nothing happened after all!
Doctor on a useless call!
Tinkle, tinkle little bell!
I don't hear you. Go to h--l!

—Robert B. Dempsey.

SANITARY SCIENCE AT TULANE UNIVERSITY, NEW ORLEANS, LA.

By W. H. P. CREIGHTON, Dean College of Technology.

Three series of courses in Sanitary Science were started at Tulane this session. These courses are for medical, science and engineering students specializing in sanitation. The medical graduate in this course expects to become the health officer on Boards of Health; the science graduate becomes the expert on sanitary biology, and the engineering graduate will eventually design, build and care for structures for sanitary purposes.

To give courses in sanitary engineering, a university must have departments in medicine and engineering on one campus. Many universities either have no medical department or that department is located in some distant city. Tulane is fortunate

in this and many other respects. The engineering and sanitary laboratories are on the same campus; the school of tropical medicine is located at Tulane, the charity hospital clinics having over one thousand beds—with its consequent wealth of medical material—is at its service.

Tulane is an endowed institution, having over one thousand students. It is free of political or religious control. It was one of the first institutions to comply with the Carnegie Foundation entrance requirements.

In the senior class of the sanitary engineering course instruction will be given in water supply, framed structures and reinforced concrete construction by Professor Donald Derickson, recently professor in post-graduate courses in reinforced concrete at Cornell University. Instruction and laboratory work in sanitary microbiology will be given by Professor Creighton Wellman and his assistants in the School of Tropical Medicine.

OUR MEDICAL DEFENSE.

To the Medical Society of the
State of California.

Gentlemen:

I wish to thank the Society for the manner in which it looked after the defense of the malpractice suit brought against me by J. F. Beene who suffered from a delayed union of the radius and ulnar of the left arm. Your defense was thorough and every precaution was taken for the protection of my professional reputation as well as my finances and no corporation, insurance company or individual could have more surely or successfully cared for and protected my interests.

I wish it were possible for the whole profession to realize the importance of having the Society back of them, as I do. Any physician is just as liable to have a suit brought against him as I was and no better protection can be had than I got in my recent trial.

Very truly yours,

N. T. ENLOE,
Chico, Calif.

ARMY MEDICAL CORPS EXAMINATIONS.

The Surgeon-General of the Army announces that preliminary examinations for the appointment of First Lieutenants in the Army Medical Corps will be held on January 20, 1913, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the Surgeon-General, U. S. Army, Washington, D. C. The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

The examination in subjects of general education (mathematics, geography, history, general literature and Latin), may be omitted in the case of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

In order to perfect all necessary arrangements for the examination, applications must be completed and in possession of the Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present thirty-five vacancies in the Medical Corps of the Army.

IMPROVEMENTS IN THE NATIONAL PARKS IN CALIFORNIA.

The Department of the Interior proposes to spend $268,403 in the national parks in California during the fiscal year ending June 30, 1914, if the amount requested by the Secretary of the Interior is appropriated by Congress. This is an increase of $170,903 over the appropriation for the current fiscal year. The increases requested are as follows: Yosemite National Park, from $80,000 to $233,703; Sequoia National Park, from $15,550 to $29,900; General Grant National Park, from $2,000 to $4,800. The principal items for each park are as follows:

Yosemite National Park: Improvement of Big Oak Flat Road from Gentry's to the floor of the valley in order to make it safe for automobiles; improving and widening road from Camp Ahwanee to Yosemite Village; concrete bridge over Merced River near El Capitan; extension of road-sprinkling system from Yosemite Village to Happy Isles and Camp Lost Arrow; improvement of power plant; extension and improvement of water-supply system; improvement of trails to Yosemite Falls, Eagle Peak, Glacier Point, Nevada Falls, Tittill Valley, and Lake Vernon; construction of new trail from Yosemite Point via White Wolf, Harden Lake, and Smith Meadows, to junction with Hetch-Hetchy trail on Poopenau Meadows; sprinkling El Portal-Yosemite road and general improvement and maintenance of roads, trails and bridges.

Sequoia National Park: Widening Grant Forest road; experimental oiling of 3 miles of road; extension of telephone lines, stairway on Moro Rock; general repairs and administration.

General Grant National Park: Three-fourths of a mile of new road in order to give separate route for automobiles; water-supply system for tourist camp; fencing camp grounds.

For the development and care of the national parks the Secretary of the Interior has asked Congress to appropriate the sum of $733,014, an increase of $505,464 over the appropriations for the current fiscal year. The national parks constitute ideal recreation grounds for thousands of people, but their development and use are seriously retarded by the lack of adequate roads and trails, and until sufficient money is appropriated for beginning a comprehensive plan of development the parks will fall far short of rendering the important public use for which they are intended. It is the intention of the Department to make the principal places of interest in the parks more accessible, to render traveling more comfortable by sprinkling the roads throughout the dry season, and to guard the health of the traveler by the installation of proper water supply and sewerage systems. The responsibility for the future conduct of the national parks must rest with Congress, but the Department feels that the financial needs of these reservations should be clearly presented to Congress in the annual estimates. A comprehensive list of books and magazine articles on the national parks has recently been issued by the Department of the Interior and may be obtained on application.

NEW AND NON-OFFICIAL REMEDIES.

Since publication of New and Non-Official Remedies, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Non-Official Remedies":

Casoid Diabetic Flour is a mixture of the albuminoids of wheat (gluten) and of milk (casein) composed of approximately: proteins 84.5, fat 1.4, mineral matter 2.5, cellular fiber, etc., 0.7, water 10.8. Employed in cases where carbohydrates are contraindicated, such as diabetes, amylaceous dyspepsia, etc. Thos. Leeming & Co., New York. (Jour. A. M. A., Nov. 2, 1912, p. 1622.)

Paratophan is methyl-atophan, 6-methyl-2-phenylquinolin-4-carboxylic acid, $CH_3.C_6H_4.N.C_9H_5.COOH$, 6:2:4 = $C_{17}H_{13}O_2N$. Its action, uses and dosage are the same as atophan. Paratophan tablets contain paratophan 0.5 gm. (7½ grains). Schering & Glatz, New York. (Jour. A. M. A., Nov. 2, 1912, p. 1623.)

Phenoco is a preparation of coal-tar creosote and higher phenol-homologues in soap solution. It is stated to contain 8 per cent. coal-tar creosote (obtained by the destructive distillation of coal and containing 15 per cent. cresol but no phenol), 62 per cent. higher phenol-homologues (phenols containing two or more methyl groups) and 30 per cent. soap. It is miscible with water forming an emulsion. It is an antiseptic and germicide, being in the latter respect 15 to 16 times as strong as phenol, and for mammals about one-half as toxic as phenol. It is used in dilutions of 1 per cent. to 5 per cent. or higher. The West Disinfecting Co., New York. (Jour. A. M. A., Nov. 9, 1912, p. 1717.)

Tuberculins represent the toxins of the tubercle bacillus. They may be in the form of a filtered extract of the bacilli or may be composed of the pulverized insoluble substance of the bacilli themselves. In the latter, or emulsified form, tuberculin is known as tubercle vaccine, and might be classed with the "Bacterial Vaccines." Supplied in the following forms:

Tuberculin Bacillen Emulsion, Tuberculin B. E., is a suspension of ground tubercle bacilli containing 5 mg. of the solid tubercle substance to each Cc.

Tuberculin B. E. Bovine is made in the same manner as the foregoing, except that the tubercle bacillus used is of the bovine type.

Tuberculin Old (Tuberculin O. T.), preserved with trikresol in 1 Cc. vials.

Tuberculin O. T. Bovine is made by the same process as the foregoing except that the organism used is of the bovine type.

Tuberculin Bouillon Filtrate is preserved with 4-10 per cent. trikresol in 1 Cc. vials.

Tuberculin B. F. Bovine is made in the same manner except that the bovine type of tubercle bacillus is used.

Tuberculin T. R., Tubercle Residue, is a suspension of 2 mg. of tubercle substance in each Cc. of the finished product.

Tuberculin Ointment (Moro Ointment) is a mixture of 50 per cent. each anhydrous wool fat and Tuberculin O. T., human strain.

Tuberculin for the Thermal Reaction contains in each Cc. 1 mg. Tuberculin O. T. Cutter Laboratory, Berkeley, Cal. (Jour. A. M. A., Nov. 9, 1912, p. 1717.)

Afridol, sodium hydroxymercuric toluylate, $C_6H_3(CH_3)(COON)HgOH$, 2:3:1. It is a white powder which does not respond to ordinary reactions of mercury, the mercury being in a nonionized form. It is supplied only in the form of Afridol Soap, which contains 4 per cent. afridol. Used as disinfectant for the hands and instruments and for the treatment of parasitic diseases. Farbenfabriken of Elberfeld Co., New York. (Jour. A. M. A., Nov. 23, 1912, p. 1887.)

LATIN-AMERICAN MEDICAL CONGRESS AND EXPOSITION OF HYGIENE.

The Fifth Latin-American Medical Congress will be held at Lima, Peru, beginning the 31st of July, 1913, and lasting until the 30th of September following. The Consul of Peru has forwarded full information concerning the Congress to the Journal and assures us that a most cordial invitation is extended by Peru to the physicians of California to attend the Congress; beyond doubt all those who attend will be most cordially welcomed and most lavishly entertained.

PASTERS WORK.

The following letter is but one of a number that have been received during the last two or three months: "I am well pleased with the stickers already obtained and would like to have another set if they are to be had. If there is any charge for them I will be glad to pay the same."

TRAVEL STUDY TOUR.

To the Editor:

The visit by a party of German physicians to the recent International Congress on Hygiene and Demography has proven that a well managed Travel Study party of physicians can make a trip through a foreign country in a far more pleasant and profitable manner, and at less expense, than can be done by traveling alone. Clinics can be arranged in advance, lectures prepared and visits made to the best hospitals and health resorts, with the assurance of a hearty welcome from the leading medical men of the localities visited. For those unable to speak the languages of the countries on the Continent, this disadvantage is reduced to a minimum and the benefits of the trip correspondingly increased by traveling with such a party.

The coming International Medical Congress, London, August 6-12, 1913, gives a splendid opportunity for organizing an American tour of this sort and plans are now ready for a Physicians' Travel Study Tour, leaving New York July 3rd for the most important capitals and health resorts on the European Continent: Paris, Munich, Carlsbad-Marienbad, Dresden, Berlin, Nauheim, Weisbaden, Cologne, Brussels, The Hague, Amsterdam, etc., ending with the week of the Congress in London.

The plan of this tour has been seen and endorsed by Drs. A. Jacobi, T. C. Janeway, Ch. G. Kerley, O. G. T. Kiliani, L. R. Williams, Wisner R. Townsend and others. Physicians interested in such a trip should write for further and more detailed information to

RICHARD KOVACS, M. D.,
236 East 69th St., N. Y. City.

NEW MEMBERS.

O'Connor, T. H., San Francisco.
Wilcox, Glover B., San Francisco.
Wolfsohn, J. M., San Francisco.
McKellar, Jas. H., Pasadena, Cal.
Bryant, A. L., Glendale, Cal.
Hunt, D. W., Glendale, Cal.
Wessels, W. F., Los Angeles, Cal.
Johnson, Carl, Los Angeles.
Butt, E. G., Redondo Beach, Cal.
Cain, Maude F., Los Angeles, Cal.
Weldon, W. A., San Pedro, Cal.
Stephens, Philip H., Los Angeles.
Gaff, Jno. V., Los Angeles.
Roth, Geo. R., Los Angeles.
Bruin, M. R., Los Angeles.
Bancroft, I. R., Los Angeles.

DEAD.

Winter, A. H., Los Angeles.
Russell, A. J., Grass Valley, Cal.
Orme, Henry S., Los Angeles.